

Guide to Business Computers • Upgrading Your IBM PC or Compatible
Which Fax Machine Should You Buy? • Software and Hardware Reviews

November 1988 \$2.95
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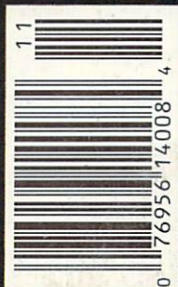
HomeOffice

COMPUTING

TM

How Small Businesses Borrow Big Money

Sophia Collier,
founder and president
of the \$30-million
American Natural
Beverage Corporation,
started her business
at home.



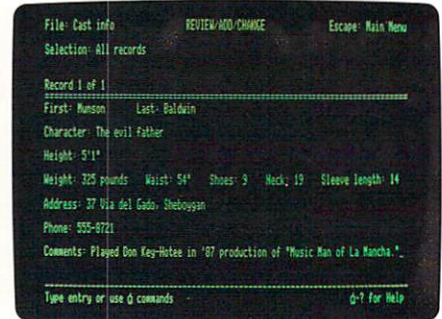
Everything isn't what it used to be.



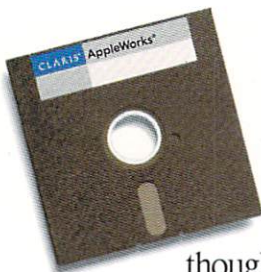
With a word processor, spreadsheet and database in one package, AppleWorks has just about everything an Apple II owner could want.



You can jump from one program to another in the blink of an eye. Which makes AppleWorks an exceptional choice for fast-paced businesses.



AppleWorks is the best-selling Apple software of all time. And if you own an Apple IIe or IIc, you still can't buy a more powerful program.



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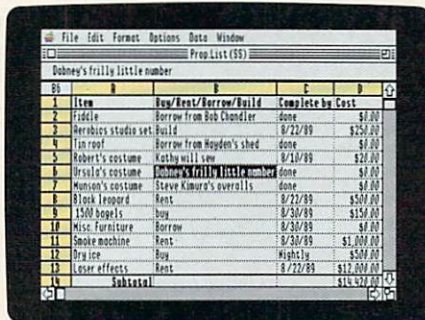
But then came the Apple IIGs. With more power and new capabilities. Everything had changed. And Apple IIGs owners wanted more.

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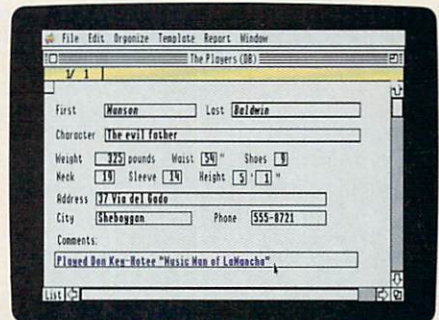
Now it's more.



Like AppleWorks, AppleWorks GS offers a powerful word processor. And you can enhance your work with type styles, sizes and fonts.



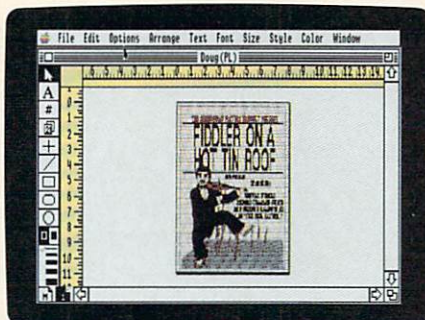
AppleWorks GS can read all your AppleWorks files. And when you transfer your spreadsheets to AppleWorks GS, you can add boldface.



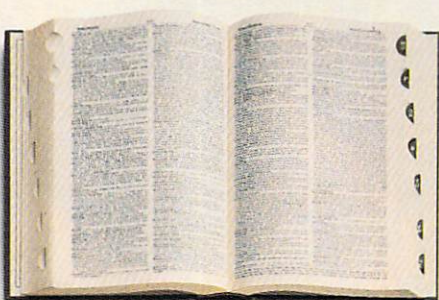
The database lets you store and sort thousands of business, school or home records. And now you can use a mouse and pull-down menus.



A graphics program that seamlessly combines bit-mapped painting and object-oriented drawing capabilities will leave Macintosh users jealous.



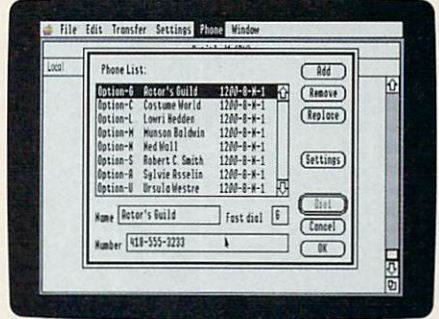
AppleWorks GS includes the most powerful Apple II page-layout program you can buy. Put all the pieces together. Then publish them.



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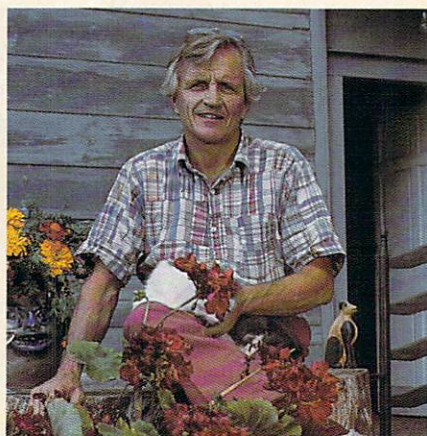
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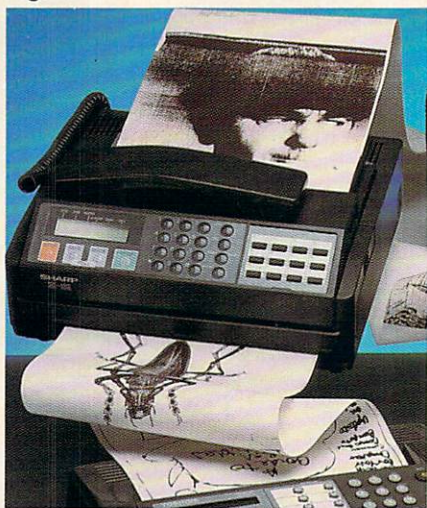
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FEATURES

COVER STORY

How Small Businesses Borrow Big Money

Page 47

Bankrolling a home-based business can be tough, but with preparation, persistence, and a creative strategy, you can find the money you need. Borrowers and lenders offer advice on finding alternative sources of funding: state small-business development programs, venture capital, barter, trade credit, and others. *Plus:* The components of an effective loan proposal, and tips on using your computer to create a professional image.

BUYER'S GUIDES

Facsimile Machines

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Communicate instantly on paper at the speed of a telephone call, via fax machine—that's how growing numbers of home-office operators keep in touch with clients and companies.

Computer Systems

Page 68

Looking for a dependable computer that fits on your desktop, works quickly, and can be expanded when you outgrow its standard configuration? Are price, availability, service, and a warranty important to you? If you're in the market for an IBM PC compatible, IBM PS/2, or a Macintosh, take a look at our reviews of 20 reliable, well supported, and widely available machines. *Plus:* Our editors' personal picks.

UPGRADING

Upgrading Your Computer, Part I: MS-DOS

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How to add spunk and sparkle—memory, speed, a hard-disk drive, and other razzle-dazzle features—to a sluggish IBM PC, XT, or compatible. *Next month:* Part II: Upgrading Your Apple II.

SOFTWARE

How to Find Lost Files Fast

Page 63

FILE NOT FOUND? Let your computer do the searching for you through the labyrinth of your hard drive. With the right software, you can search for whole file names or just specific text within a file and organize your hard disk into clearly labeled subdirectories. *Plus:* Five proven file-finders—*Findswell*, *GOfer*, *MacTree*, *XTree*, and *XTree Pro*.

SIDE-BY-SIDE COMPARISON

The Paper Race

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Express mail, facsimile, or telecommunication—what's the best way to send a letter when it absolutely, positively has to be there yesterday? What price is right, and what image do you want to convey? The biggest pluses and minuses of six alternatives.

PRODUCTS

Equipping Your Office

Page 44

Make your home office hum with professional telephone services, including custom-calling features and services for multiline phones. *Plus:* Useful long-distance options.

Hardware Reviews

Page 78

Mini-Guide to Full-Page Monitors: Amdek Monitor/1280; Cornerstone Technology SinglePage; Princeton Graphics LM-300; Taxan Crystal View. *Printer:* Epson LQ-500. *Office Equipment:* Smith-Corona Personal Word Processor 6BL and Panasonic Cordlessphone Model KX-T3000.

Office Essentials

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The latest in useful and innovative office accessories, supplies, and furniture.

Software Reviews

Page 90

Full reviews: *PageMaker*; *Choice Words*; *Dr. Halo III*; and *MergeWrite*. Quick Takes: *PC Quintet*; *ShowOff*; and *SuperLaserSpool*.

FAMILY COMPUTING

Earning a Degree On-line

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Pick and choose from a smorgasbord of on-line college courses and fulfill the requirements for a career-boosting college degree—without leaving home.

Software for Learning and Leisure

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Education and Family Productivity Reviews, page 105; Capsule Reviews, page 108; Entertainment Reviews, page 111; Capsule Reviews, page 109.

Entertainment News and Hints

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COLUMNS

Working Smarter

Page 16

Columnists Paul and Sarah Edwards provide insight and inspiration for living and working under one roof. *This month*: Advice for business success from Robert Pritikin; how to prioritize tasks when your workload is overwhelming; and a new motivational recording from entrepreneur Brian Tracy.

ShopTalk

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This month, small-business and home-office expert Joanne Pratt advises readers on marketing, real-estate management software, and automated accounting for a dental practice.

Clinic

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HOME-OFFICE COMPUTING's technical staff digs up answers to readers' computing questions. *This month*: Apple IIGS scanners; protecting disks from magnetic fields; and the meaning of MicroChannel Architecture.

Machine Specifics

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Computer and software news, opinions, quotes, and rumors, reported by HOME-OFFICE COMPUTING columnists with an eye on the Apple, IBM PC and PS/2, Macintosh, Tandy, and MS-DOS universes.

Workstyles

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Our telecommuting senior editor, Nick Sullivan, describes how he and his wife manage to concentrate on their work in a house full of children.

DEPARTMENTS

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Letters

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Up Front

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News, advice, tips, and a shot of humor—on computing, using home-office technology, and running a home business. *This month*: Copiers go to work in the home; Computing aches of the 1980s; one man's Rx for success; and the advent of public fax booths. *Plus*: American Home Business Association chairman, Julian Cohen, on the future of home-based businesses.

Word Processing

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Make your word processor work like a database with these five techniques that help you take full advantage of the Search function.

Desktop Publishing

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By mastering the terms of typography, you'll be able to understand the language of your desktop-publishing software, make the most of *picas* and *points* or *fonts* and *typefaces*, and *spec* your documents with ease.

Spreadsheets

Page 32

How to set up the @IF function that will let your computer decide how to carry out calculations. In our example, a California photo-finisher uses @IF in the *Microsoft Works* spreadsheet to assign 25-percent discounts to regular accounts billing over \$50 per month.

Databases

Page 38

Manage information the way you think, with Hypertext, a branching software "thought system" that's revolutionizing MS-DOS and Macintosh applications. *Plus*: Hypertext software in action—*AskSam*, *Guide*, and *HyperCard*.

Telecomputing

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Tap a bank of over 150 million items of information through Dialog, the world's oldest and largest on-line database service—but be prepared to pay from \$15 to \$300 per hour to use this "library at your fingertips."

Best-Selling Software

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Upcoming Features

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Classifieds

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What Do Plaid Pants and Computer Buyer's Guides Have in Common?

I should have known better than to throw out my old plaid pants. Never did I imagine that in 1988 I'd be pictured on this page in a brand-new pair of tartan trousers. Classics just don't go away.

This issue of HOME-OFFICE COMPUTING has its own classic: Our buyer's guide to computer systems (see page 67). Despite the recent changes in our magazine, we held on to this mainstay. But we asked people who work from home what information they need when considering a new computer and, as a result of their answers, we altered the beast.

We heard, "Tell us which computers are best for running a small, usually home-based business. We're interested in value, a trim size, speed, capacity for growth, support, and availability. A computer is a major and vitally important business investment. Tell us where to put our money."

So this buyer's guide has a new focus. It is devoted to machines designed expressly for business use and looked at as a business investment.

We heard, "We don't have a lot of time to spend reading. Skip the minutia about the architecture. Keep it short and easy to understand."

So we kept it clear and concise. All the details—the technical specifications—are there, but they shouldn't overwhelm you.

We heard, "Tell us what you really think. Help us. Share your expertise and your preferences with us."

So, in this buyer's guide, preferences you'll get. Note the "editors' pick" designations throughout. Our homegrown Siskels and Eberts argued back and forth over their choices, taking their recommendations very seriously, aware that your money and time and business are at stake.

We spoke to one another, reminding ourselves that "Computing" remains part of our name. We kept in mind that computing is probably the major factor that enables you to choose a working-from-home lifestyle and to achieve the professional-quality work that makes you a respectable competitor for even the largest companies.

Our goal was to help you make your final selection and to make the purchasing process



PHOTOGRAPH BY JAMES WOLFE

Have fax, will travel. Editor Claudia Cohl, on vacation in Belfast, Maine, receives photo options for this month's cover via facsimile machine. The fax stayed home, receiving manuscripts and messages, even when Cohl was out on Penobscot Bay.

as painless as possible. We don't say, "This is the one." We can't. Any number of machines will do the work. But whenever we buy something, we have to take the personal-preference factor into account. You know what feels right for you. We're here to help you understand what's involved up to the gut level. When it comes to knowing which keyboard clicks just right, which model motivates you to get to work, which seems like the best deal, which one you'd be proud to own, yours is the only vote that counts.

Claudia Cohl

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EDITOR-IN-CHIEF

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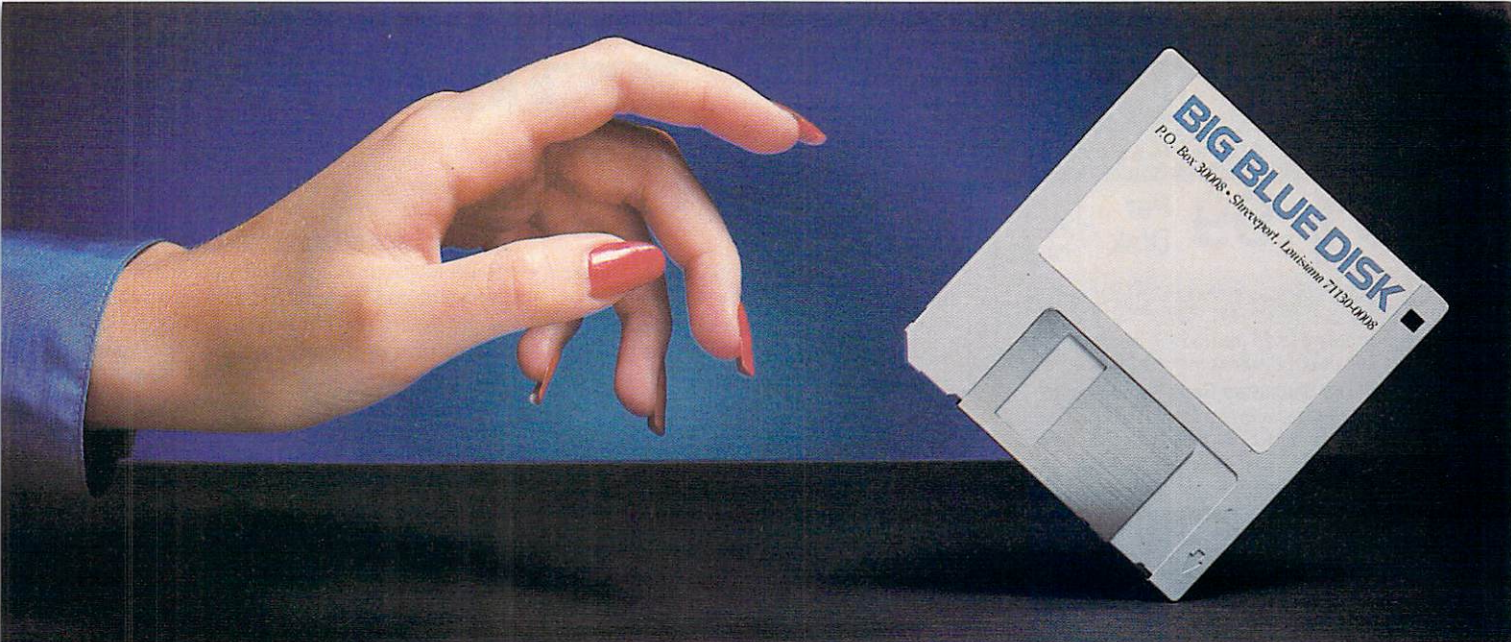
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CIRCLE READER SERVICE 51

LETTERS

FAN MAIL

I like your new name and format. Thanks for having the courage to be different.

THOMASINE LEVEROCK
OWNER, LEVEROCK'S COMPU-SERVICE
Pinellas Park, Florida

As a devout follower of your magazine, I would like to thank you for all the great information in your September issue for people with home businesses.

In regard to the article "What's New with Laser Printers" in that issue (page 92), you may add me to the list of those who say, "I intend to buy one."

One request: I'm planning to switch from DisplayWrite (IBM) to WordPerfect version 5, and I would like to know how the two compare. It's curious that even though programs such as DisplayWrite are widely used and powerful, I've never seen a review showing how popular programs such as WordPerfect, Microsoft Word, WordStar, and others measure up for ease of learning, documentation, and other standard criteria.

WILLIAM A. ANDERSON
Houston, Texas

EDITOR'S NOTE: Much as we'd like to comply with your request, December's feature, "The Big Guns in Word Processing" won't review DisplayWrite. It will, however, compare Word and WordPerfect and describe the features of several other major MS-DOS and Macintosh word processors. Since you're already familiar with DisplayWrite, you might be able to run a comparison of your own, based on the WordPerfect information.

A DIFFERENT DREAM

Your recent name change to HOME-OFFICE COMPUTING appears to be the culmination of a plan that began even before last year's change of title from Family Computing to Family & Home-Office Computing. I believe the family computing dream still deserves the full coverage you gave it when I first found your magazine under that name over two years ago. As you said in your August Editor's Note, millions of parents (myself included) still have the dream of using the computer to help their children learn.

Please don't get me wrong. I agree that the subject of home-office computing deserves the coverage you are determined to give it. But this topic could carry an entire magazine by itself and family topics that once took an entire issue to cover should not be confined to one section in your new magazine.

CHERYL L. MILLSTEAD
Provo, Utah

MORE GAMES ON MONOCHROME

Readers seeking game software that runs on monochrome systems (Letters; July 1988, page 6) might be interested in contacting Keypunch Software, Inc., 1221 Pioneer Building, St. Paul, MN 55101. Keypunch sells games for the IBM PC and compatibles, Commodore, Apple II, Atari 800 and ST, and Macintosh. Disks cost \$7 to \$13, and each contains three to four programs.

LINDA C. LA VICTOIRE
Brandon, Florida

THERE'S MORE MAC-WARE

I realize how difficult it must be to cover a subject adequately, as you tried to do in your article "90-Plus Proven Programs for Home-Office Productivity" (September, page 68). There is so much software available! But I feel you really missed the boat in listing only one relational database for the Macintosh.

An excellent pool of powerful relational databases exists for the Mac. To name but a few: Reflex (Borland/Analytica), Double Helix II (Odesta Corporation), 4th Dimension (ACIUS), and the new Foxbase + iMac (Fox Software), also out for the PC. I own and use Filemaker Plus. By the way, did the name change to Filemaker II, which you mention in your article, when Claris Corporation acquired it from Nashoba Systems?

SCOTT M. TUBBESING
Kansas City, Missouri

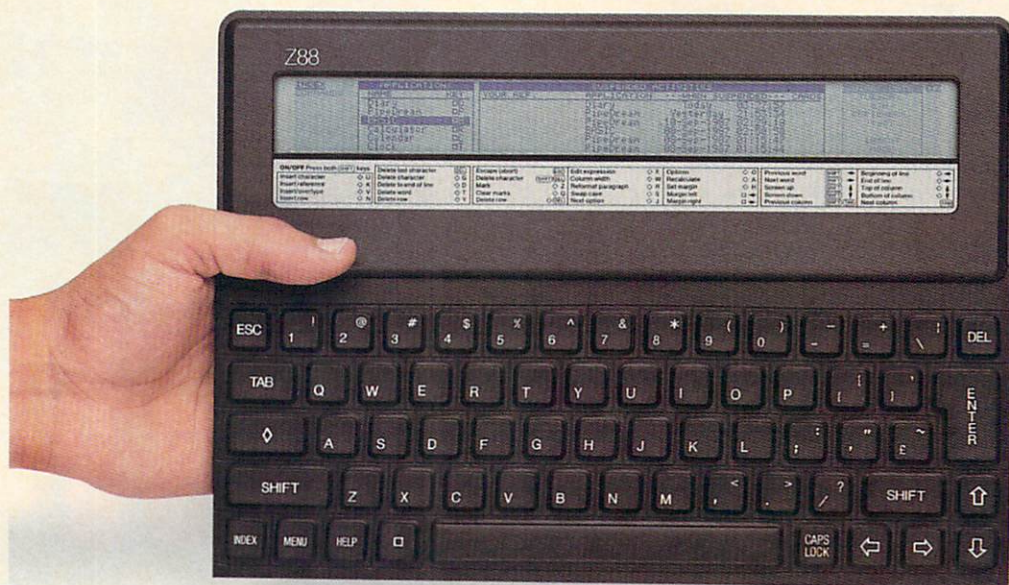
EDITOR'S NOTE: Your hunch was right; the name did change. Thank you for reminding our readers of these Mac programs.

NEC'S IN SYNCH

Betsey F. Cadden of NEC Home Electronics (U.S.A.) Inc. informs us that the words "MultiSync," "multisynchronization," and "multisynchronous" were used inappropriately in a review of Princeton Graphic Systems's Ultrasync Monitor on pages 50-51 of the August 1988 issue. MultiSync is a registered trademark of NEC Home Electronics (U.S.A.) Inc. (NECHE). Princeton's Ultrasync is another variable frequency monitor. We stand corrected and hope this clears up any confusion that may have resulted from the review.

HOME-OFFICE COMPUTING looks forward to letters from all its readers. Please direct your correspondence to Letters to the Editor, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. Include your name, address, and phone number. We reserve the right to edit letters for length and clarity. Due to the large volume of mail we receive, we are not able to respond personally to every letter.

The cure for the



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CIRCLE READER SERVICE 18

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	8201 32K RAM Pack	45.00	3.00	48.00	
	8202 128K RAM Pack	110.00	3.00	113.00	
	8210 32K EPROM Pack	45.00	3.00	48.00	
	8211 128K EPROM Pack	110.00	3.00	113.00	
	8220 IBM PC Link II	75.00	3.00	78.00	
	8230 Serial Cable 9M to 25F	22.00	3.00	25.00	
	8231 Parallel Cable 9M to 36M	65.00	3.00	68.00	
	8240 Modem and Cable	259.00	5.00	264.00	
	8232 AC Adapter	9.95	3.00	12.95	
Illinois residents add 7% sales tax					
TOTAL ORDER					

EDITED BY LISA WU

The Future Of Home Businesses

By the year 2000, home-based businesses will employ 25 percent of the American work force, according to Julian Cohen, chairman of the American Home Business Association. Cohen, a home-based worker who keeps in touch with his Darien, Connecticut, office by modem and facsimile machine, says that in the U.S. today there are 16.5 million full-time and part-time home-based businesses, and that this country is adding an estimated 450,000 new home businesses to the tax rolls each year.

The most growth has occurred on the east and west coasts, says Cohen. There is a large client base in the major industrial centers, especially in Silicon Valley and along the Boston-Washington corridor.

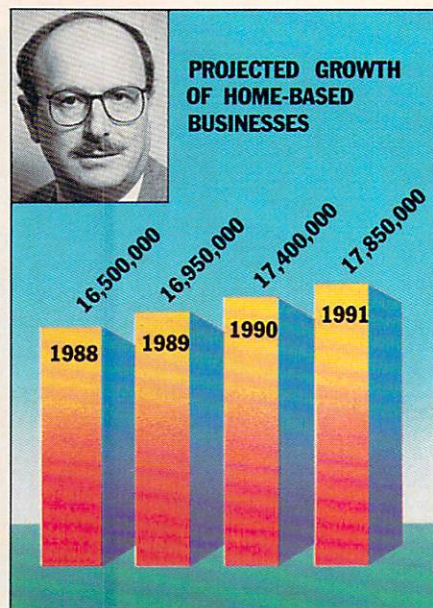
And, he adds, many of those home-based entrepreneurs are staying in business. Although it is too early to draw any definite conclusions from his own research, he says, most home businesses that stay alive the first year stay in business for at least five years.

"There are two major things happening at about the same time," says Cohen. "Corporations are scaling down on their in-house services and buying 'à la carte.' Resource

managers realized the whole employee package created a very expensive bill. So, they cut back to what they thought was absolutely necessary. They thought, 'Well, we'd rather pay a little bit extra for other services when we need them, instead of having them as a constant overhead.'"

"Simultaneously, the computer, the telephone, and the telephone answering machine made it possible for people to work out of their homes and produce material that looked exactly like it came from a Fortune 500 company. In many ways the personal computer fueled this expansion by allowing home-based businesspeople to be very productive. With the computer, the word processor, and the spreadsheet, they could provide the quality, the depth of service, and the appearance of a professional product."

What impact is the influx of home businesses having upon society? "Well," says Cohen, "it keeps millions of cars off the highways at rush hour. Also, if people think it's O.K. to work from home, it builds social structures that are less centered around the office and more around the community. That will have a profound impact. For working



Julian Cohen of the American Home Business Association predicts that the future growth of home businesses will create social life centered around the home.

persons today, the office provides a large percent of their social structure and is a basis for their social interaction. But in a home-based business, office romance means making love to your spouse."

—BRIANNA POLITZER

A Public Fax Booth on Every Corner?

Public facsimile-machine booths are joining phone booths and Coke machines in newsstands, malls, airports, hotels, and parking garages across the country. ActionFax, which has installed more fax booths than any of its competitors, has 100 booths in such major cities as New York (there's one in the lobby of the Empire State Building), Boston, Los Angeles, Chicago, and Atlanta. These booths are convenient for those who travel and, of course, people who only occasionally need a fax machine.

In an upper-middle-class residential area of North Dallas, 30 to 40 percent of the registered ActionFax booth users are people who work at home, according to Steve Gordon, national marketing manager for ActionFax USA, Inc. "They drive five minutes to the local fax booth, which is usually located on the ground floor of a shopping mall or hotel lobby. It's better than overnight mail—it's immediate service, easily available."

For the traveling businessperson, a fax booth is the next best thing to a portable fax machine. While waiting for connecting flights, frequent fliers can send and receive documents right inside airport terminals.

Faxit Corporation, for instance, has installed booths in Northwest Airlines passenger lounges at 12 major U.S. airports.

Using a fax booth isn't cheap: Sending a document through ActionFax within the United States costs \$4 for the first page, \$2 each for pages 2-10, and \$1 each for pages 11 and up. The receiving rates are lower: \$3 for the first page, \$1 each for pages 2-10, and \$.50 each for pages 11 and up. These prices include the cost of the telephone call, whether local or long distance. You can use your Visa, Mastercard, or American Express, or at the end of the month, ActionFax will bill you and send you a statement.

To send a fax, fill out a cover sheet with the recipient's fax number and your name and credit card number, place your document on the feeder, press the "send" button, and voilà—the fax is on its way—to the nearest ActionFax computer center (which is open 24 hours a day), where it's stored and forwarded to your destination.

To receive documents, you'll need to register with ActionFax. You'll receive an account number, charge card, and a fax number (which you'll share with other registered us-

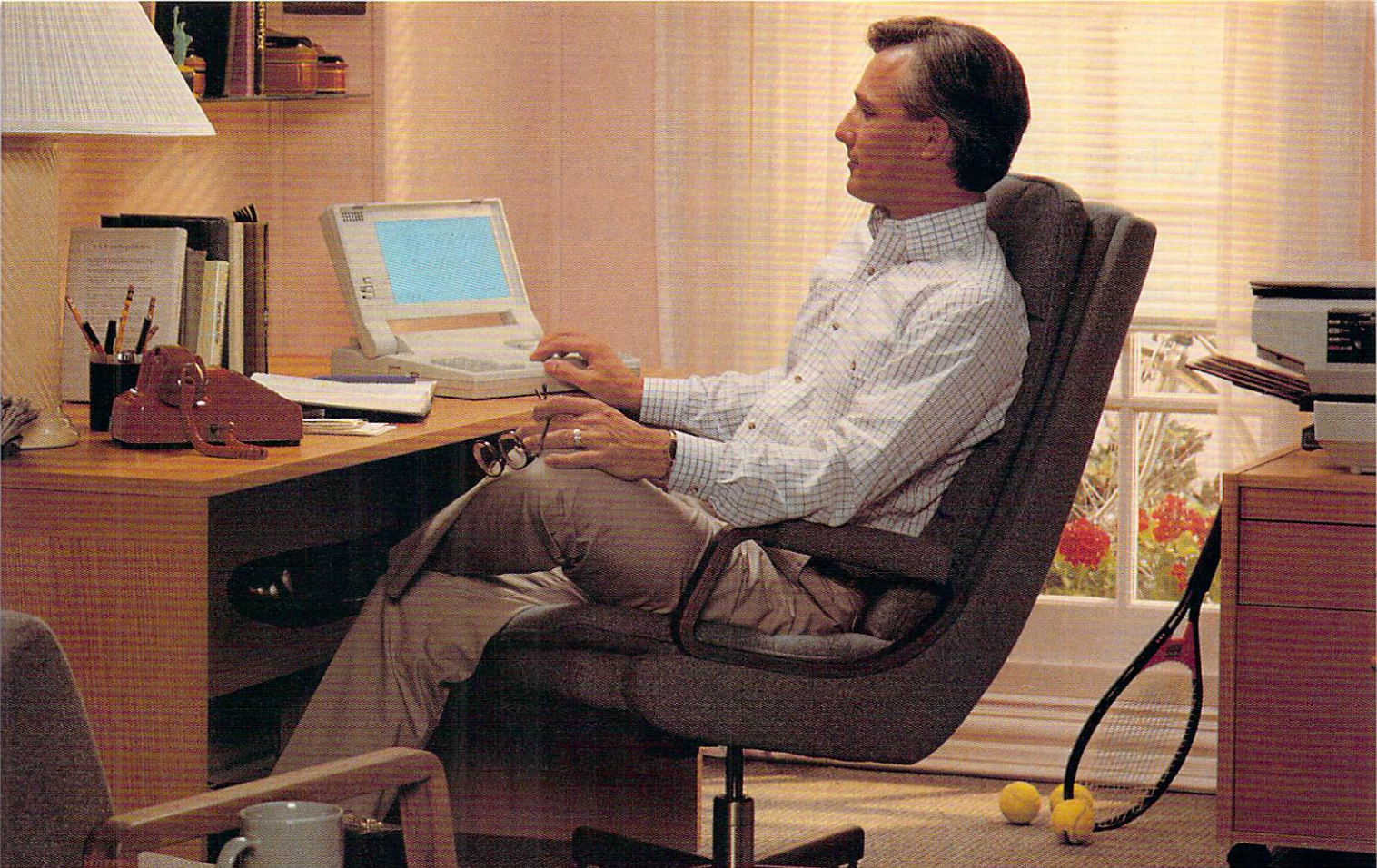


You can 'fax it' and 'charge it' to your Visa, Mastercard or American Express credit card.

ers in your area) to put on your business cards and letterhead. When the computer center receives a fax addressed to you, the ActionFax agent there will call you and give you the assigned code name for that particular transaction. You then go to any ActionFax booth, pick up the phone, tell the operator the code name, and the fax will be sent to you right at the booth.

You might even be able to cash in on the trend and operate an ActionFax regional franchise or buy a single fax booth. ActionFax offers franchises in selected areas.

—LISA WU



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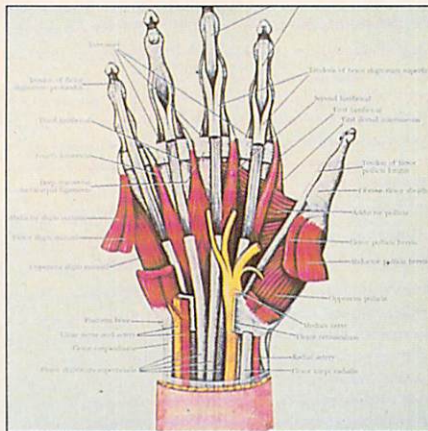
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Aches of the '80s: Tennis Elbow, Runner's Knee, Computer Hand

Everyone's heard of tennis elbow and runner's knee. But *computer hand*? According to the National Institute for Occupational Safety and Health, a painful hand injury, Carpal Tunnel Syndrome (CTS), affects 23,000 Americans who use their wrists extensively—most of them heavy keyboard users. And that number is actually higher, according to Glenda Key, a Minneapolis-based industrial consultant and physical therapist.

Named for the narrow tunnel in the wrist connecting ligament and bone, CTS is sometimes misdiagnosed as arthritis. The median nerve, which carries impulses from the brain to the hand, and the tendons that open and close the hand are found in the carpal tunnel. When undue pressure is put on the tendons, they can swell and compress the median nerve, causing numbness, weakness, tingling, and burning in the fingers and hands.

A principal cause of CTS is stiff, static



wrist position. "Positioning is everything," says Susan Isernhagen, another physical therapist. Keyboard users, because they use their wrists and hands extensively, are one of the most susceptible groups.

You can prevent CTS by setting up your computer system to avoid stress on the arms and wrist. Keyboard height is of utmost importance—elbows should be at about a 90-degree angle and held loosely at your sides. "Periodically, rest your hand on the muscle between the pinky and the wrist, and support your hand on the keyboard," says Key. Keep hands and arms relaxed and don't wear jewelry that constricts the wrist. Take time out to shake out your hands and arms when they feel tired. And try not to punch the keys too forcefully.

Physical therapy is turning out to be an effective prevention and rehabilitation treatment. If you feel persistent tingling in your neck, shoulders, or arms, don't ignore it. CTS can become so debilitating that the sufferer can't perform such basic tasks as grasping objects and buttoning a shirt.

—KATHRYN BONN

Copiers Multiply in Homes

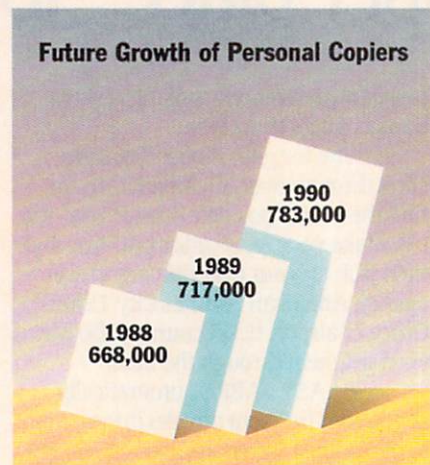
Without a doubt, the mid-1980s was the heyday of couch-potato technology: the VCR, the popcorn maker, and the remote-control anything. In this decade's final trimester, however, home-office workers and their technologies—computers, fax machines, multifunction telephones, and personal copiers—are making the biggest splash.

Take personal copiers, for example. Between 50,000 and 60,000 homes will be outfitted with new personal copiers every year between now and 1990, according to CAP International, a market-research firm based in Norwell, Massachusetts. When Jack Klugman started lugging around a portable copier in Canon advertisements, most Americans were still digging behind couch cushions in search of the remote controls for their televisions. Now, the TVs are turned off, and the computers and copiers are turned on.

"The personal copier has paved the way for the home office," says Ray Boggs, director of Small Business Market Strategy Ser-

vice at CAP. "It's one of the three essential office products along with the telephone and personal computer." Fax machines are quickly becoming the fourth essential home office product, adds Boggs.

—L.W.



Rx for Success

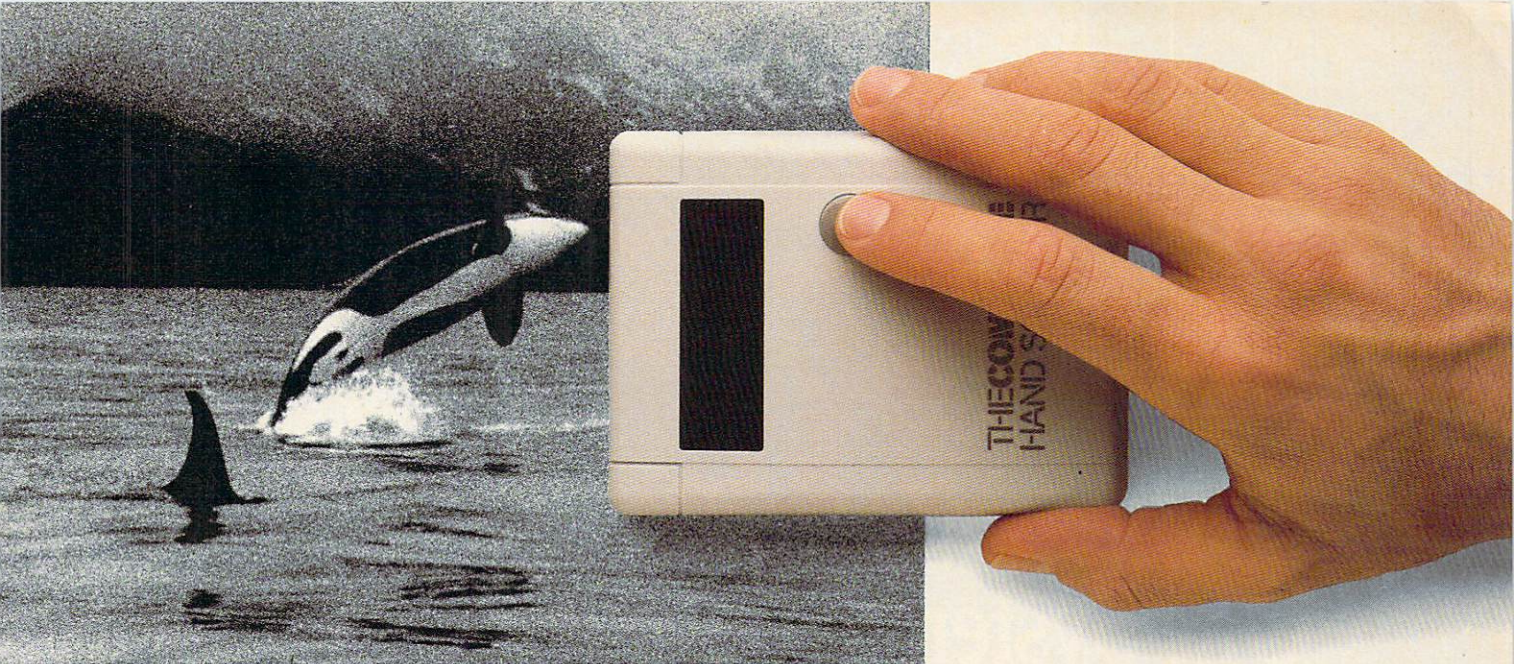
Reader Paul Lurie gave HOME-OFFICE COMPUTING this prescription for success:

A senior partner at the law firm Neal Gerber Eisenberg & Lurie, Lurie frequently works from home. But he doesn't have to carry floppy disks back and forth between his home office and his office in downtown Chicago. Instead, Lurie uses *Turn-On* (from Dynatech), a \$325 software-hardware package, a modem, *PC Anywhere* remote host software, and his Toshiba portable computer to power up and operate a COMPAQ 386 at his office. Now, Lurie can access his office files from anywhere. "At home, I turn on my office computer, arrange my schedule, and even print memos," says Lurie. "I couldn't do it without *Turn-On*. It's an invaluable tool."

—L.W.

True or False: Despite the Women's Movement, Men Still Start the Majority of All Home Businesses.

False: Women launched 71 percent of all home-based businesses between April 1987 and April 1988, according to market research firm Link Resources.



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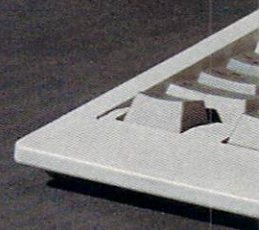
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True 16 bit built-in VGA Graphics is component matched for high speed and clarity. Even our 101-key PS/2 type keyboard has been tailored for speed and durability.

Convenience. The HeadStart III incorporates both a 1.2 megabyte 5.25-inch and a 1.44 megabyte 3.5-inch floppy drive. Both standard. So you don't have to choose between the two. Our "bridge technology" lets you boot a disk from either drive, and software select your drive configuration.

In addition, the low profile and small footprint of the HeadStart III make it ideal for even the smallest workstation.

Flexibility. Virtually any combination of peripherals can be attached without ever opening the computer. Two serial ports, one parallel port, a bus mouse port and even a game port are all standard.





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course, DOS 3.3 and Basic. In addition, we've upgraded our award winning HeadStart environment to make you even more productive.

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CIRCLE READER SERVICE 47

A Home Business Makes A Hot Investment

BY SARAH & PAUL EDWARDS



If you're looking for a sure-fire investment with a long-term return, look in the mirror. Self-made millionaire and investment counselor Brian Sheen says you are your own best investment.

In his book, *Nest Egg Investing* (G.P. Putnam's Sons, 1987), Sheen, 35, outlines a lifelong program for financial independence that begins with increasing your earning power by making an investment in the development of your knowledge, talent, and skills.

Sheen has discovered only two workable methods of achieving wealth: highly disciplined savings or the operation and growth of some type of business venture. He finds too often that wealth through savings alone comes too late to enjoy it. So he recommends that instead of using your savings to slowly amass funds for your retirement, use that money to establish a business venture.

Turn your favorite activities, hobbies, or interests into a profitable full- or part-time home business. Start by taking business courses and getting the consultation you need to help assure your success.

For Sheen, investing in his financial independence has been worth the effort. "As a millionaire, you can do what you want," he claims. "You don't have to convince anyone else to bankroll your dreams. You can finance them yourself."

Advice for Business Success from Robert Pritikin. Research biologist and businessperson Robert Pritikin is carrying on the mission of his father, Nathan Pritikin, to eliminate heart disease as a public-health problem in the United States by means of a healthful diet and exercise program. Since his father's death, Pritikin has continued to build the thriving Pritikin Longevity Centers for health and fitness, and he claims to have built the business by word-of-mouth.

He gave us some words of advice: "Have a product that fits a need. Improve it in every way, and it will sell itself. Work hard, and if

you have a product that works and you believe in it, you're going to be successful."

The Best Shoestring Marketing Strategy. While you're building your business and the cash flow is low, here's a low-cost way to make sure people find out about your high-quality products and services. The most cost-effective marketing tool available is right under your nose. It's called networking—the informal process of talking to people you know and making contact with others who might help your business grow. Here are a few tips from our book *Working from Home* for starting your networking.

"Work hard, and if you have a product that works and you believe in it, you're going to be successful."

**Robert Pritikin, president,
Pritikin Longevity Centers**

- Make a list of everyone you know. Include such persons as family, friends, business associates, past and present co-workers, suppliers, and neighbors. Call and tell them about your business. Let them know specifically what help you need.
- Join several professional, trade, and civic organizations in your area. Start attending events sponsored by an organization and become involved in activities. In networking, just as in advertising, repetition counts. So make sure you repeatedly tell those you meet about what your business offers and let them know what help you need. Volunteer to write a column for the organization's newsletter or offer to speak at one of its meetings.
- Find or start a networking organization or lead club. The sole purpose of these organizations is to generate business leads for members. Membership is usually limited to persons in a given type of business, and the groups meet as often as once a week. You might find a networking organization by calling The Network ([800] 825-8286). If you

can't find one in your area, you can also start one with the help of The Network.

What to Do When You Have Too Much to Do. Having too much to do and not enough time to do it can leave you feeling overwhelmed and immobilized. We use a technique called Master Memory to help clear the mind and get on track by putting first things first.

First, take a deep, relaxing breath and sigh deeply on the exhale. Then, to completely clear your mind, quickly write a list of everything you think you need to do. This list will be your Master Memory. With it, you no longer need to worry about keeping track of all the things you need to do. They are right there whenever you need to recall them.

After listing the items, mark when each item must be done: now, later today, tomorrow, this week, this month, sometime. Select the most urgent and important task and go to work. Should something else come up, don't let it sidetrack you; just add it to your Master Memory.

Consult your Master Memory list each morning and throughout the day. Adding any unfinished business to it at bedtime takes the load off your mind before going to bed. And crossing off items as you complete them gives you a sense of accomplishment.

Keep your Master Memory with your appointment book, in a separate notebook, or on a computer file.

Recommended Listening. *How to Start and Succeed in Your Own Business* is a six-cassette album from Nightingale-Conant by entrepreneur Brian Tracy (\$55; to order, call [800] 323-5552). It covers the key requirements for business success from marketing and selling strategies to financial planning and leadership skills. Here are excerpts:

- "The great majority of people in business for themselves are not great geniuses. But they have a strong belief in themselves and in their ability to succeed."
- "The most successful multimillionaires and billionaires have fights, struggles, battles, setbacks, obstacles, defeats, and disappointments every single day."
- "The difference between winners and losers is that losers think these mistakes . . . these setbacks . . . these heartaches . . . are happening to them for the first time in history. Winners pick themselves up, learn what they can, salvage the best, and carry on."

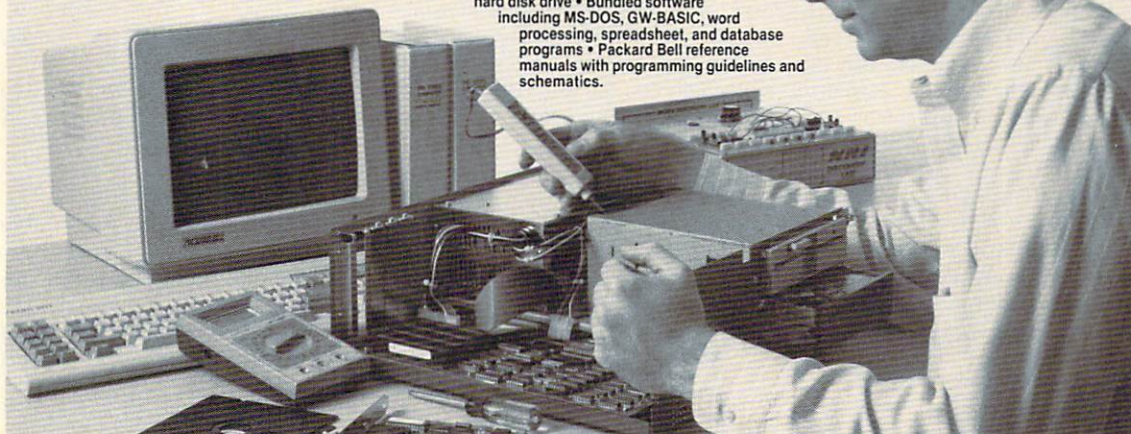
Tracy's practical advice will help you to carry on until you reach your goals. ■

PAUL & SARAH EDWARDS are the authors of *Working from Home, Everything You Need to Know to Live and Work Under One Roof* (Jeremy P. Tarcher, Inc., 1987). They co-host the radio program "Wake Up to Success!" Contact them directly on-line on The Working From Home Forum, which they operate on CompuServe.

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Advice On Marketing, Real Estate, and Accounting

BY JOANNE PRATT



Your house has just been robbed, and you're counting the losses: your computer, your only record of accounts receivable, your dBase IV original disks, and that old printer you'd wanted to replace. Which items are covered by your insurance? If you don't know, take a look at a book you may have missed, Peg Contrucci's *The Home Office: How to Set It Up, Operate It, and Make It Pay Off* (Prentice Hall Press, 1985; New York; \$12.95, paperback). This handy resource book is packed with tips on how to read the fine print in your insurance policy, price your services, write a contract, and deal with local zoning codes. You'll also find sound advice on equipping your office and scheduling your work.

Q. I am trying to establish a consulting business out of my home doing electronics prototype work. I can produce CAD schematics and assembly drawings, parts lists, and other documents relevant to the trade on my Leading Edge Model D2 with 30MB hard drive, NEC Multisync II monitor, and NEC P5XL printer.

I want to hire someone to market my services, but the marketing organizations I found in the yellow pages wanted \$20,000 per campaign! An associate, who also works from his home, and I would like to know who could help us at a reasonable cost. Does anyone do this kind of marketing, for say, 5-to 10-percent commission? Does such a service exist in our area? How do people find someone to market their services at a reasonable cost?

ALAN P. BROOKSTONE
Denver, Colorado

A. Have you defined your market? If you have a long list of potential clients, you could place a classified ad for a commissioned salesperson, or you could hire a marketing consultant who works with small companies. You might locate one in Denver by calling the American Marketing Association ([303] 220-8042) or the Denver Advertising Federation ([303] 830-1584). But you may have given up too soon. When walking through the yellow pages, read the advertisements carefully. You may find just what you're looking for. Leslie Walker Consulting Services ([303] 322-7013) advertises "Tomorrow's Concepts at Yesterday's Prices" in the

Denver Yellow Pages. Walker, whom I know through a colleague, is a home-based consultant who may be able to help you.

A typical marketing plan might include a direct mailing to 200 to 500 companies followed by a phone call. The calls could be made by telemarketers whom your consultant would find for you, or you could make the calls yourself after honing your own telemarketing skills.

Referrals are still your best source of clients, so don't overlook requesting them from your present clients and past employers.

**Never say,
"I can't do that."
Ask yourself,
"Is there a similar
business I could do
that would be
enjoyable and
profitable
for me?"**

Q. My wife and I are in the process of putting together a flat-fee real-estate company. We have been looking for software that would store buyers' and sellers' requests and automatically match them. We have not been able to find any type of software for an IBM PC AT compatible that would match the buyers' and sellers' needs.

STEWART SATTERWHITE
Akron, Ohio

A. *The Broker's Tools* (Logical Choices, Inc., 4 Mechanic St., Newton, MA 02164; [617] 574-0636; \$995) was written for the individual broker or small agency just like your business. The program tracks buyers, listings, and comparable sales. Among the reports you'll be able to print out are lists of properties matching prospects and vice versa and mailing labels of prospects. Check out this program by calling for the free demonstration disk.

Q. I want to start my own accounting service company specializing in dental accounting. Is there a software package that will do the job? I plan to buy an IBM PC.

ROGER FENNIMORE
Bay Village, Ohio

A. You've thought of an astute business idea. You'll need vertical software designed for your purposes. *Client Dental Billing PC* (CMA Micro Computer, 55888 Yucca Trail, Yucca Valley, CA 92286-2080; [619] 365-9718; \$1,600) is specialized accounting software for dental practices. The program will enable you to prepare dental insurance claim forms and keep patients' master records and accounts receivable. Because the program can also handle medical billings, you can eventually broaden your client base to include physicians at no extra software cost.

BUSINESS OPPORTUNITIES

I hear and read about a lot of business opportunities that I'd like to begin sharing with you. Don't react by saying, "I can't do that." Ask yourself instead, "Is there anything similar I could do that would be enjoyable and profitable for me?"

- Make a business specialty of doing custom research for the real-estate industry. Developers, real-estate investors, and mortgage lenders all want market information tailored to their needs.

- Graphic designers will be in demand to help amateur desktop publishers turn out professional newsletters, brochures, and reports. To capitalize on this need, set up a temporary agency that provides desktop publishers with skilled graphic designers for short-term projects.

SEND US YOUR HOME-OFFICE QUESTIONS

Send your questions on home business, moonlighting, telecommuting, or any other income-producing work to consultant Joanne H. Pratt, c/o ShopTalk, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. Because of the volume of mail received, not all questions can be answered. Ms. Pratt regrets that she cannot give personal replies except through her consulting firm, Joanne H. Pratt Associates, P.O. Box 190647, Dallas, TX 75219. ■

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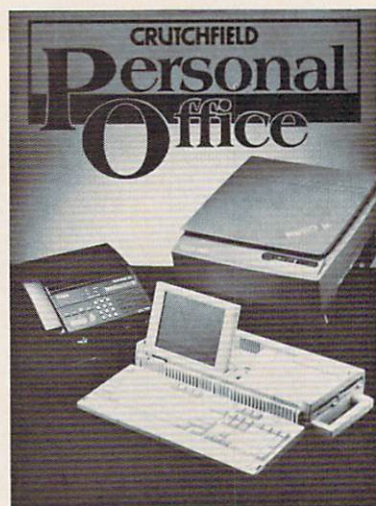
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CLINIC

Answers to Your Computing Questions

EDITED BY JEFF DONAHUE

MICROCHANNEL ARCHITECTURE

Q. Do the IBM PS/2 Models 25 and 30 come with MicroChannel Architecture? What is MicroChannel Architecture? Also, can I obtain an external 3.5-inch disk drive for my Amstrad 1512 PC? Or an internal hard-disk drive?

KENNETH LEE
Irvine, California

A. IBM has used MicroChannel Architecture (MCA) only in its Personal System/2 series Models 50, 50 Z, 60, 70, and 80, not in Models 25 and 30 (which have standard PC XT buses). MicroChannel Architecture represents a break from IBM's conventional computer circuitry design and therefore is a controversial topic. MCA was developed as an open-ended system that takes advantage of parallel processing. Using technology that can relay information in 32-bit segments on the 70 and 80, and 16-bit segments on the 50, 50 Z, and 60, MCA provides for an increase in processing power (speed) of anywhere from two to three times that of an average IBM AT machine. Critics of MCA dislike the hefty cost of this technology and the lower availability of MCA plug-in cards.

As far as disk-drives for your Amstrad are concerned, the company has so far not made the machine compatible with external drives. However, you can use any half-height MS-DOS hard disk or 3.5-inch drive with a standard Western Digital disk-controller card with the Amstrad. And many Amstrad owners opt for a 20 or 40MB hard-card (a plug-in card that stores data) that can be installed in an available slot.

SCANNER SOLUTIONS

Q. I have an Apple IIGS and need a flatbed scanner that scans images into graphics programs and supports optical character recognition (OCR). I don't think there is a scanner to suit my needs. Will an IBM-compatible scanner in conjunction with Applied Engineering's PC Transporter work with my Apple IIGS?

PIERRE JOLIN
Granby, Quebec, Canada

A. At the present time, I can't turn up such a scanner for the Apple II series. But if you

already own the Applied Engineering (P.O. Box 5100, Carrollton, TX; 75011 [214] 241-6060) PC Transporter board, you can shop around for a suitable IBM-compatible scanner and hook it up to your Apple IIGS. There are a few things to keep in mind: The scanner must connect to your computer through a standard serial port (common among IBM scanners). If a scanner requires you to install an interface card, the IBM card will be incompatible with your Apple. Applied Engineering's board only translates IBM data and programs into Apple format; it does not serve as a bridge for IBM hardware.

DATA PROTECTION

Q. I am thinking of installing magnetic latches on many of the windows in my home. The closest window magnet would be about two feet away from where I store my disks. Will these small magnets affect the data on my floppy disks? What is a safe distance?

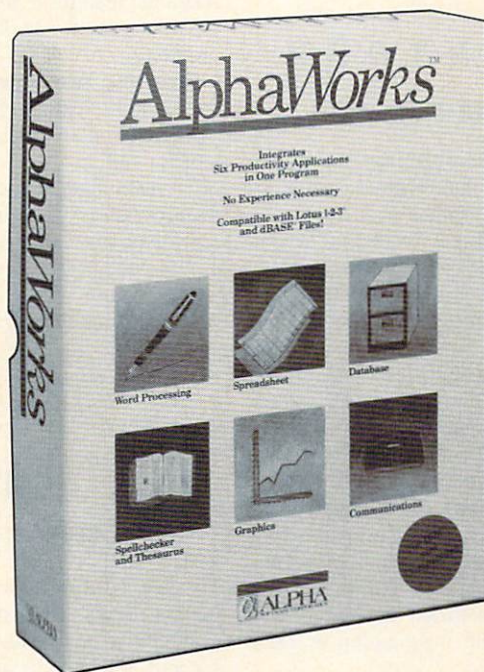
MARY JO VAN LANEN
Little Suamico, Wisconsin

A. Whenever you have any device that produces an electromagnetic field close to magnetically stored data (floppy disks, hard disks, or tapes, for instance), you are taking a risk.

It does not take much abuse to "frazzle" a disk. Be aware of hidden sources of electromagnetism. Anything with a motor (such as fans and turntables) is a potential danger, as are mechanisms that produce sound (telephones and speakers, for example) and any device with a transformer (your computer monitor, for instance). Safe distances are very hard to specify exactly. Play it safe by moving your disks away from the window magnets. And don't lay your disks on top of disk drives or monitors.

If you have technical questions or computer ailments that need diagnosing, our technical staff will try to help. Although we cannot answer every letter, we will try to deal with questions and problems that are common to many people. Send your letters to: Clinic, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. ■

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News, Opinions, Quotes, and Rumors About Your Favorite Machine

APPLE II

BY CHARLES H. GAJEWAY

Apple announced that it will be shipping the IIGS with 512K RAM installed (\$999), tacitly acknowledging that 256K is inadequate to support the capabilities of the GS. The extra RAM will come installed on a memory expansion card at no increase in price. (Up to 1MB can be added to that card, for users needing even more oomph).

New On-line Service. As reported last month, Apple Computer and Quantum Computer Services (the company behind QuantumLink for Commodore users) have jointly launched AppleLink Personal Edition, an information network aimed at providing Apple owners with a convenient means of accessing a variety of information sources. I've tried it out and basically like what I see.

AppleLink offers news services, stock-market data, American Airlines/Easy Sabre reservations, Grolier's Academic American Encyclopedia, Comp-U-Store, multiplayer games, special-interest forums, and software libraries.

What makes the service unique is access to Apple's technical and product databases and a connection to Apple Customer Relations. In addition, the Industry Connection offers demo software, product data, and technical support from third-party vendors.

The Price Is Right. The price is certainly right; the \$35 annual fee is much less than the annual subscription just to Grolier's on most other networks. And the system is definitely easy to use, with icons and pull-down menus instead of interminable scrolling. Typing is minimized, as most actions can be selected with a single keypress or mouseclick.

There's plenty of room for improvement, though. While the data services provided are adequate, they need to be expanded. And many of the forums and discussions are rather skeletal at the moment. Even the Apple data seemed a bit out of date and incomplete. There were no prices, and I could not find any information on the Apple IIc upgrade except that it was required for the IIc memory expansion. Most of these problems will be ironed out as more and more users sign up; increased participation always makes a net-

work more up-to-date and vital.

Altogether, I found AppleLink to be enjoyable. If you have held off getting into telecommunications because of the cost or the technical aspects, try AppleLink. It's easy, fun, and reasonably priced.

Apple II Roundtable. Another information network, GENie, recently signed up its 100,000th customer when Donald DeSorte of Atco, New Jersey, subscribed to GENie to access the Apple II RoundTable. GENie claims to be the fastest growing consumer information network, and it owes much of its success to the active Apple II and Macintosh interest groups.

MACINTOSH

BY CHARLES H. GAJEWAY

I write having just returned from the Boston MacWorld Expo, a huge showcase for the latest Mac products, spread over three exhibition halls and conference centers. The constant crowd of people passing through attested to the increasing popularity of the Mac, especially for business and professional applications.

Presentation Software. Cricket, Aldus, Symantec, Microsoft, and Letraset all demonstrated software designed to ease the task of preparing and co-ordinating effective presentation materials. Kodak, 3M, Tektronix, QMS, Hewlett-Packard, and several others showed film recorders, color printers, overhead-projection adapters, and other presentation-quality output devices. This application has taken off like a rocket in the past few months, catching the imagination of users and vendors alike.

MacWorld Picks. And now for the really good stuff, the products I felt really stood out as being truly useful, valuable additions to your Mac system. Whereas I thought GCC Technologies' (formerly General Computer Corp.) new Business LaserPrinters offered good value, I fell in love with its WriteMove printer (\$699). Based on the Diconix 150 ink-jet printer, modified to print at a resolution of 192 dpi, the WriteMove can produce output of near-laser quality for far less than an ImageWriter LQ. It's tiny and nearly silent as well.

I also liked Silicon Beach Software's *SuperPaint 2.0*. This program has always been a delight, but the improvements make it simply stunning. This is the basic graphics program for the Mac, an absolute must-have, which should be available as you read this. Those who deal more heavily in graphics will want to look at *Digital Darkroom*, and *Super 3D Enhanced*, both very different, and first-rate image manipulation programs.

Clarix was showing the latest version of *Filemaker* (which it just bought from Nashoba Systems), and it is very smooth—an easy-to-use program with just enough quasi-relational features to make it unnecessary for most users to tackle the heavy-duty programs.

Promising Vaporware. In the "promising vaporware" category, Informix's *Wingz* "presentation spreadsheet" program looked terrific, and Acius's *4th Dimension 2.0* will offer supercharged speed and dazzling new features before year-end. Conspicuously absent was Lotus Development with *1-2-3 Mac*; I guess they were embarrassed to show up with more smoke after tanking *Modern Jazz*, last year's vaporware champ.

CHARLES H. GAJEWAY can be reached on CompuServe (ID:73357,3577) or on GENie (ID: C GAJEWAY).

IBM

BY HENRY F. BEECHOLD

The new IBM Quickwriter (\$1,699) is a 24-pin dot-matrix printer that offers high-quality printouts at high speed (330 characters per second). Eight fonts are built in and others can be downloaded. The Quickwriter uses the same print codes as the IBM Quietwriter III. IBM claims that the Quickwriter matches the Selectric III typewriter in print quality.

Schedules in a Shoebox. *Shoebox 1 Plus* (\$95; R+R Associates) is a RAM resident pop-up appointment calendar and task allocation system with a host of handy features, including reminder flags (up to 120 days advance notice), expense tracking, report printing, a search routine that locates time blocks for setting appointments, automatic purge of old data, and a lot more. This is not



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Code #02

a simple appointment-list program but a highly sophisticated time manager. It's the best I've seen.

Shoobox 2 (\$195) is for multiple users on a single computer, and **Shoobox 3** (\$350 plus \$10 per workstation) is for multiple users on a network. Available in both 5.25-inch and 3.5-inch formats.

Something For Everyone. S.F.E. (\$69; Bourbaki Inc.) is a potpourri of utilities for improving hard-disk performance, controlling your printer, encrypting and decrypting files, locking up the keyboard to keep meddlers from using your computer, mapping the computer's memory to diagnose problems arising from conflicts among RAM-resident software, controlling cursor and scrolling speeds, WordStar file conversion (8-bit ASCII to 7-bit ASCII), and more.

For Problem Solvers. A subset of the *TK Solver Plus*, **MiniTK** (\$20; Universal Technical Systems Inc.) is a program for solving many kinds of number-related problems—financial, scientific, whatever. Although *MiniTK* is a miniature, it has a great deal of power in its own right and may well serve all of your mathematical needs. To use the program, which comes with menu and help screens, you enter the appropriate formula(s) and values for variables. When you press the SOLVE key (F9), *MiniTK* takes over and

does the dirty work. You not only get answers, but a paper trail that allows you to analyze the problem and the results.

If you decide to go for the full program (\$395), you'll have access to the large library of TK Solverpacks covering mechanical and electrical engineering, financial analysis, building design and construction, introductory science, and unit conversions.

HENRY BEECHHOLD is the author of *The Brady Guide to Microcomputer Troubleshooting & Maintenance* (Brady Books, Prentice Hall Press, New York).

MS-DOS

BY STEVE MORGENSTERN

If you're a professional who requires a more muscular machine on the road—for intensive hotel-room spreadsheeting, for example—you now have several attractive choices sporting the speedy Intel 80386 microprocessor. And one of these even offers battery power, albeit for an impractically short duration.

Toshiba T5100. The Toshiba T5100 is certainly an attractive power-user portable. I am a big fan of Toshiba's gas-plasma display—the orange-on-dark-orange screen is pinpoint

sharp, and on the T5100 it supports EGA graphics. The weight is within reason—15 pounds. If you've never carried such a portable for substantial distances, imagine carrying a bowling ball through an airport. Tiring? Yes, but not as bad as the 20-plus pound transportable computers of the recent past.

The Toshiba runs at a speedy 10MHz, fast enough for most applications. With this much power, an exemplary keyboard, and a built-in adapter to connect an external EGA monitor, you might well be tempted to use the T5100 as an all-around desktop machine that you can take on the road as needed. The T5100 lists for \$7,499 and comes with a 40MB hard disk and 2MB of RAM. There's only one fly in the ointment—you can't remove the gas plasma display for desktop use.

The Gridcase 1530 (\$5,735; Grid Systems) is another gas-plasma display, 80386-based portable that accepts an optional rechargeable battery power supply—the only machine in this processor class that can run without a power cord. If battery power is high on your priority list, though, the Grid Systems machine may be too little too early, since the battery life ranges from one to three hours—even less with a lot of disk access.

The Best of All Worlds? Wells American Corporation has announced an interesting new approach for people who can't make up

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FOR: _____					
DATE	PAY TO THE ORDER OF	CHECK NO	AMOUNT		
Enter the date for this check or disbursement or press ESC to see the menu.					
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their minds. Do you want an AT-compatible bus, or MicroChannel Architecture? And which microprocessor—8086? 80286? 80386? Wells American promises its new CompuStar (\$2,175 and up) unit will let you use both AT and MCA expansion boards simultaneously and switch microprocessors as needed.

The CompuStar is a floor-standing unit that can house both AT and MCA slots, with the microprocessor mounted on an easily swapped circuit board. As of this writing, Wells American has not cut a deal with IBM to use the MCA bus system, and claims it's not infringing on IBM patents. The new computer has not shipped yet; for more information, contact Wells American in South Carolina at (803) 796-7800.

STEVE MORGENSTERN can be reached on CompuServe (ID: 72545,606).

TANDY

BY STEPHEN MILLER

Tandy's new product announcements a few months ago made a point that should be reemphasized—most kinds of home-office electronic products are available at Radio Shack. In addition to computers, you can

find telephones, answering machines, facsimile machines, intercoms, security devices, disks, computer paper, labels, audio tapes, and just about anything else you need to outfit your office. Tandy offers one-stop shopping for your home office.

Tandy Customer Support. Radio Shack stores and Computer Centers give great customer service, but there are times when you need a question answered right away. For that, Tandy maintains customer-support phone lines. The advice costs only the price of a call to Fort Worth, Texas. Here are the Tandy Technical Support phone numbers:

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GCC Technologies (617) 890-0880
Grid Systems (415) 656-4700
IBM (800) 426-2468
Informix Software (913) 492-3800
Quantum Computer Services (703) 448-8700
R + R Associates (914) 668-4057
Silicon Beach Software (619) 695-6956
Toshiba (714) 583-3000
Universal Technical Systems (800) 435-7887
Wells American (803) 796-7800.

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- Accounting Software: (817) 338-2391
- MS-DOS & Language Support Group: (817) 338-2392
- Communications Software & Hardware Support: (817) 338-2394
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- Educational Software: (817) 338-2396

Bargain of the Month. When most computers are discontinued, the potential customer is often wary of buying for fear of lack of future support. But with the current price of the Tandy 200 laptop under \$500 (this for a computer that once sold for \$999), it may be time to go buy one. Even if you only occasionally need a laptop, this price is a bargain.

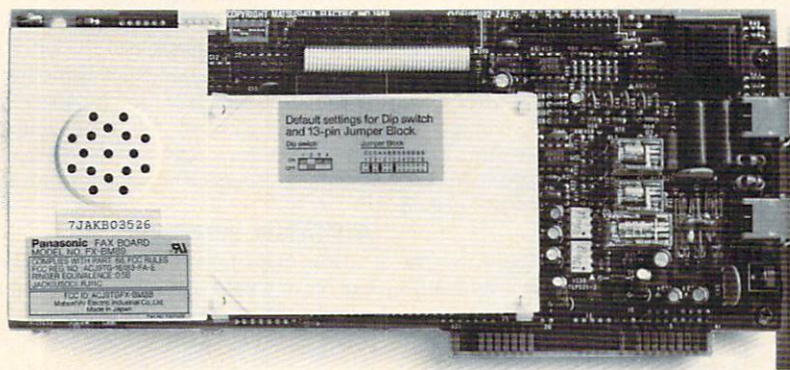
The 200 is light, has a decent screen, and can be expanded to hold a respectable amount of information (up to 72K RAM). Though it's not MS-DOS compatible, files can be easily transferred to a desktop computer by modem or by a direct connect cable and a transfer program. The 200 even has a built-in spreadsheet program.

Tandy will continue to support the 200 as company policy is to support any discontinued product for seven years. ■

STEPHEN MILLER is a computer journalist and consultant.

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1. IBM is a registered trademark of International Business Machines Corporation.
2. Barbara Clifford and Sally J. Price, "PC FAX BOARDS," *Info World*, April 25, 1988.

Make Your Word Processor Work Like a Database

BY GEORGE CAMPBELL

Five Techniques for Getting the most Out of The Search Function

When it comes to choosing software to organize details, many people begin by thinking of database programs. The electronic equivalents of filing cabinets, databases help structure information by giving you neat pigeonholes in which you can save each scrap. Put the new customer's last name in one field, the address in another field, the phone number in a third field—and tie up all the fields for that customer into a single record, like a folder, which you store in a file on disk with the rest of the records for your customers.

Yet simply because they require this precise framework for your data, traditional databases are complicated. You're locked into a system that accepts only certain information—information that fits into your predefined data structure of fields and records.

Word processors, however, are much less intimidating to use and are often the first application program that people learn. Even though they cannot order your information like a database can, typical word processors give you the tools to create a data storage-and-recovery system free from database limitations. (Note, though, that by using a word processor to store data, you give up at least two database strengths: reorganizing information with its sort function and reformatting information with its reporting function.)

So if a system that lets you enter and find any data in any format appeals to you, read on. The key to free-form databases—using your word processor—is your program's Search capability. All word processors, even the simplest, include some sort of Search command. With it you can locate any text in a document.

A SIMPLE WORD-PROCESSOR DATABASE

For lots of people, the most frequently used database is a simple address book. To use a traditional address database, you must exit your word processor, then start the database program to access your address book. That's often not very efficient.

GEORGE CAMPBELL wrote about word-processing style checkers in the last issue of HOME-OFFICE COMPUTING.



ILLUSTRATION BY RUTH RICHARDSON

If you'd like to have your word processor perform the same task instead, first create a new document. Enter your names and addresses, along with any other information. You can use any format you like. When I do this, I enter the data as I would use it in the address block of a letter. Here's a sample:

*Mr. Everett P. Sampson
President
Amalgamated Blivets, Inc.
1234 Fifth Street
Los Angeles, CA 90026
(213) 555-5555*

NOTES: Everett likes to be called Ev. His wife's name is Helen, and she is treasurer for the firm. They have two children, Everett, Jr., and Elizabeth. Ev, Sr., is always very cooperative with projects and likes to see his name in print.

It's that simple. No records or fields—just the information you need. You can include any data in any form you choose. Once you've entered all your names and addresses, save the document with a name such as ADDRESS.DOC.

When you need to access an address, simply load the file and use your program's Search command to find it. For example, to find Mr. Sampson's entry, using Microsoft Word, I would press ESCape, then "S" for Search, and type "Sampson."

There's more, though. Suppose I needed to locate all the entries with the zip code 90026. I'd just search for that number, then repeat the search as needed.

While I would only be able to pull together one name or zip code at a time with this method (as contrasted to using a database, which could call up all records where the zip code equals "90026" with a single command), the powerful part of a word-processor data file is that you are not restricted to a

fixed field format or size. It's truly a customized system.

USING WINDOWS FOR MAXIMUM POWER

Many word processors, even lower-priced ones, allow you to display more than one document at a time on-screen. If your software has this feature, you can expand the power of your word-processor database.

Everyone writes letters. Here's a way to use your address-book database with windows. Open two windows. Now load your address file in one window and create your letter in the other.

Use the Search command to find the addressee for your letter. Now use the Block Copy functions of your word processor to copy the address block into the letter's window. The information is available instantly, already in the correct format. And if you've previously checked the name-and-address file entries for accuracy, there's no worry about correspondence being misdirected.

A DATABASE NOTEBOOK

How many times have you needed to find a quote or a note you've written down somewhere? Or perhaps you have an idea for something you want to say later in your document. You could write it down on a note pad, but there's a better way.

When I'm writing, I keep a second window open, containing a file named NOTES.DOC. If I need to jot something down, I switch windows and type in my note. For example, if I encounter a piece of information I might use later in an article, I just jot it down, providing a key word for a later search. Here's a sample entry:

Computer. There are more than 16 million IBM-compatible PCs in use.

Later, when I need that fact, I can find it

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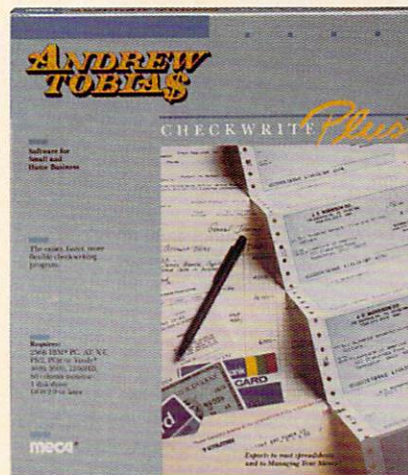
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W P

quickly by searching for the word "Computer." I could also access the information with a search for "IBM-compatible," "PC," or even "million." The flexibility allows unlimited access to the notes without leaving the word processor.

After locating the information and using it in your document, you can either delete it from the NOTES file or leave it there for future use. My own NOTES.DOC file is 96K long and holds information of all kinds. I use it daily for all types of writing needs. While I could use separate note files for each project, I find it easier to keep everything in one place and use the word processor's Search function to find what I need.

USING DATA FILES FOR MAIL-MERGE

If you create form letters, you already use a word-processor database system. The data file containing names and addresses for your form letters is a valuable resource. Using the same techniques described above, you can use your data file to locate any name or address you might need.

Suppose you need to find all the records for a specific zip code. Search for that zip code, repeating the search until you locate all the records. If your word processor can open a second window, you can create a new data file quickly, containing a sub-set of your main file. Just copy each needed record.

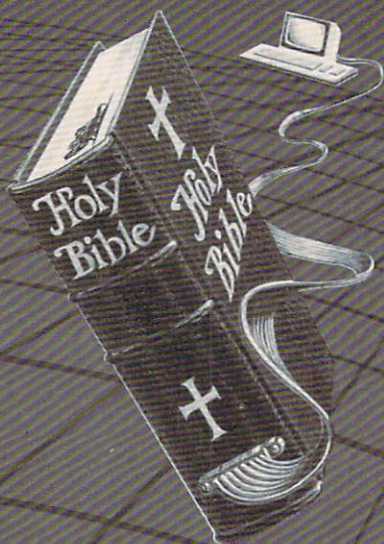
A common problem with mail-merge data files is duplicated records. With the new postage rates at 25 cents per first-class letter, duplicate mailings are expensive. Before adding new records, use the Search command to look for and check each name for duplicates.

Try these easy database techniques with your word processor. You'll soon find that you use your traditional database program solely for information that needs to be highly organized. But when it comes to less structured data such as notes or names, turn to a word processor.

PRODUCT NEWS AND NOTES

As the world shrinks, contact among nations grows—and so does the need to communicate in a variety of languages. **Interword** is a full-featured, MS-DOS word processor that lets you work in 32 languages—with complete use of the different characters, punctuation, and accent marks—including U.S. English, U.K. English, French, German, Spanish, Russian, Arabic, Hebrew, Italian, and Finnish. You can even check spelling in different languages. The basic **Interword** package (\$295) comes with the U.S. English option; add-ons for additional languages are sold separately (\$195 each; quantity discounts available). To learn more, contact Computers Anywhere, Inc., 8200 Greensboro Dr., McLean, VA 22102; (703) 442-7910. ■

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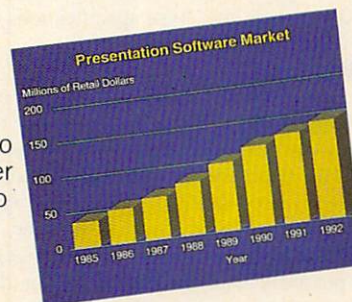
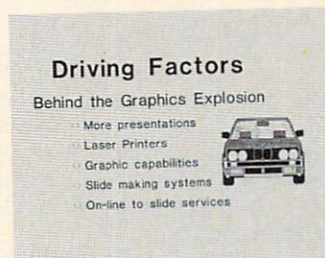
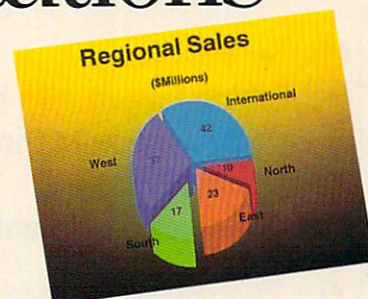
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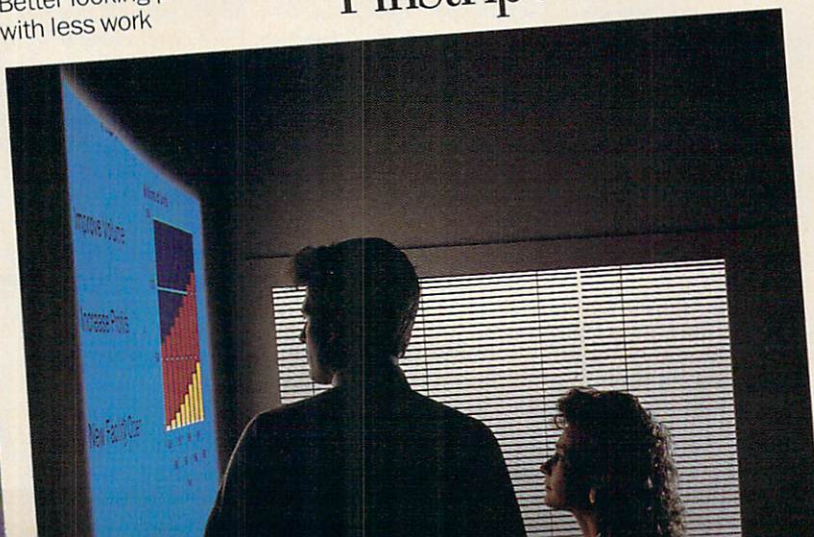
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Terms of Type (Part I)

BY STEVE MORGENSTERN

Master Desktop Publishing Jargon with this Easy Introduction to Picas And Points, Ems and Ens, Typefaces and Fonts

When you set up a desktop publishing system, you are entering a community of typesetters and designers that goes back to the days when printed pages were composed by arranging individually cast pieces of metal type in a large wooden frame. We inherit more than tradition from our ink-stained forebears. We also inherit a vocabulary that is still used today in all kinds of typesetting, whether mechanical or computerized. You won't go far, however, without learning a few key concepts.

Let's start by using the proper word for the job at hand. A designer doesn't "choose" type—he or she *specs* type. Pronounced "specks," it's short for "specifies," and the resulting instructions to the typesetter are the "type specs" or "type specifications."

FOR GOOD MEASURE

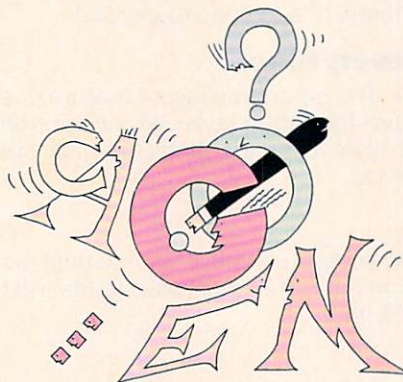
Yes, good old inches are widely used in setting up page sizes and margins, but the technical units of measure are *picas* and *points*.

The point system of type measurement was invented in 1737 by a French typographer named Pierre Simon Fournier, and it became an international standard. Each point is precisely .013837 inch, which for all practical purposes means there are 72 points to the inch. Measurements of type height and the space between lines of type are expressed in points. This section of HOME-OFFICE COMPUTING is set in 9-point Times Roman with one additional point between the lines.

That space between lines of type is called *leading* (pronounced "ledding"). The term is a holdover from the days when individual strips of lead were inserted between lines of metal type. When we say type is "set solid," we mean there is no additional leading inserted between lines. This does not mean the bottom of one line of letters touches the top of the one beneath it, since there is some spacing on the top and bottom built into the typeface definition. When we add space between lines, we add a point or two of leading. If we set 10-point type without any additional

leading, we say it's set "10 on 10," which is often written 10/10. With one point of leading it's 10 on 11, or 10/11. This section is 9 on 10, or 9/10.

Larger measurements, such as the width of a column or page and column margins, are expressed in picas. One pica equals 12 points. Since there are 72 points to the inch and 72 divided by 12 equals 6, there are 6 picas to the inch (within a hair's breadth). It is not uncommon to see mix-and-match measurement units in page-layout specifications, since paper is usually ordered in inches, and typography is usually set up in pica widths. Most designers find it simplest to translate the page dimensions to picas just once, and



spec the column widths and margins in picas.

Another piece of jargon you may encounter is a *measure*, which is synonymous with "column width" in typesetting terms. If you set a column of text 16 picas wide, you've set it to a measure of 16 picas. The measure of this column is 13.5 picas, a fairly standard column width for a three-column page.

EMS AND ENS

No, they're not color-coated candies—*ems* and *ens* are other useful typographic measurements. An em is the width of the capital M in a particular typeface, and an en is the width of the N. Since these measurements vary for different type sizes, they are useful for specifying dimensions that need to be in proportion to the type characters. For example, an em dash is a dash the width of an M—same idea with an en dash, an em space, and an en space. As illustration, an em dash is used in the first and the preceding sentences of this paragraph to give emphasis to the breaks in those sentences.

TYPEFACE VS. FONT

A *typeface* is the design of a particular set of letters, symbols, and punctuation marks.

Helvetica, Times, Palatino, and Optima are typefaces. Sometimes when we talk about typefaces we really mean typeface *families*. Times Roman, Times Bold, Times Italic, and Times Bold Italic are all different typefaces in the Times family that share the same underlying characteristics, but require a separate design for each weight or slant.

Traditionally, a *font* is a complete set of type for a single typeface in a single size. Therefore, 12-point Helvetica is a different font than 10-point Helvetica. This distinction is still significant to users of non-PostScript printers, which require a separate font definition for each type size. PostScript printers, on the other hand, allow the user freedom to scale the size of the typeface up and down, blurring the distinction between typefaces and fonts.

This muddled jargon helps explain the confusion some laser-printer shoppers encounter when they compare the number of built-in typefaces (often referred to as "fonts" in advertising) in different printers. Most PostScript printers now include a standardized assortment of 35 typefaces. When you look at the list, though, you generally find only 10 typeface names. That's because most of these 10 actually include several members of a typeface family. Palatino, for example, is provided in roman (straight up and down in medium weight), italic (slanted), bold, and bold italic—that's four typefaces.

There's much more to say on the topic of type—next month's column will define such terms as serif versus sans serif type, justification versus ragged right, and more concepts that desktop publishers need to know.

PRODUCT NEWS AND NOTES

If you use a PostScript printer, you'll want the new Adobe type catalog called **Fonts & Function**. It's 32 pages long in a large (11-by-15-inch) format. It includes type samples of the complete line of the Adobe downloadable PostScript type library, which is available for both Macintosh and IBM-compatible computers. The catalog includes several special features, including lots of tips and techniques, some excellent examples of logotype and business-card design, and useful reference charts that really help you spec type.

The major reason you want this catalog, though, is that it is simply a beautiful publication—pure class all the way, elegantly designed and produced, and loaded with inspiration. To order your catalog free of charge, call Adobe Systems at (800) 833-6687. ■

STEVE MORGENSTERN is a contributing editor for HOME-OFFICE COMPUTING.

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CIRCLE READER SERVICE 37

Teach Your Spreadsheet To "Think"

BY ROB KRUMM

Decision Making with The IF() Function

Chet Robbins runs a one-hour photo-finish business in Lafayette, California, a small suburban community outside of San Francisco. Robbins observed that many of his bigger clients were businesses or organizations that processed photos regularly. In order to encourage repeat business, Robbins set up commercial charge accounts for his regular customers and billed them on a monthly basis. In addition to the charge accounts, Robbins offered charge-account customers a 25-percent discount if their total bill exceeded \$50 in a calendar month.

This meant that Robbins was going to have to keep track of the charges and send a monthly statement to each customer. He selected the PC version of Microsoft *Works*, a full-featured integrated package, for that purpose. In setting up the *Works* spreadsheet, Robbins listed charges for each account and automatically calculated the subtotal, state tax, and total due. The sample screen display in the accompanying figure shows a portion of the worksheet that Robbins put together. Using it for his work was a real time-saver.

However, Robbins ran into an annoying problem with accounts that exceeded \$50. In order to obtain a subtotal, he constructed the worksheet using the SUM() function to add up all the charges listed in each column. This worked fine when the monthly bill was below the \$50 ceiling, but when the customer qualified for the discount, Robbins had to rework the formula to arrive at the discounted billing. This not only wasted time, but caused opportunities for error.

HOW THE IF() FUNCTION MAKES DECISIONS

Was there some way Robbins could make his spreadsheet automatically take the 25-percent deduction from any of the accounts that topped the \$50 ceiling? Yes. The answer lies in the IF() function, a special function found in almost all spreadsheets. The IF()

ROB KRUMM wrote about spreadsheet "lookup" functions in the last issue of HOME-OFFICE COMPUTING.

File Edit Formula Format Data Options Macro Window

B15		=IF(SUM(B3:B14)>50,SUM(B3:B14)*0.75,SUM(B3:B14))			
Charge Accounts - October 1988					
	A	B	C	D	E
1		Simpson	McDonald	Chamber of	Walter
2		Real Estate	Insurance	Commerce	La Fish
3	Charges	6.87	11.22	10.69	12.56
4		4.56	5.39	9.94	6.78
5		10.31	1.10	1.46	9.68
6		6.75	5.56	15.43	12.67
7		8.50	6.78	7.18	6.75
8		6.87		23.58	
9		11.30		3.80	
10		24.44		17.67	
11				7.13	
12				2.66	
13				13.55	
14					
15	Subtotal	59.70	30.05	84.82	48.44
16	Tax	3.88	1.95	5.51	3.15
17	Total due	63.58	32.00	90.33	51.59
18		25% Discount	NO Discount	25% Discount	NO Discount
19					
20					

The powerful IF() function gives spreadsheets the ability to choose between two or more alternatives—numbers or text—and automatically insert the correct choice into a cell.

function was designed to solve problems just like the one shown here in which the computer must make a decision about how a calculation should be carried out.

As a rule, an IF() function is more complicated to use than simple functions such as SUM() or AVG() because an IF() function is used to make a decision. Any decision requires at least two alternatives. Without the IF() function, the two alternatives take the form of two distinct formulas. Robbins's original formula for each column's subtotal was SUM(B3:B14) (or C3:C14, D3:D14, and so on, for succeeding columns). When Robbins discovered that the total for a customer exceeded \$50, he revised the formula to read SUM(B3:B14)*0.75—that is, 100 percent minus 25 percent equals 75 percent of the total charges, the amount due.

The IF() function allows Robbins to enter both formulas at once. In addition to the two formulas, the IF() function also requires a "rule" by which it can decide which of the two alternate formulas should be used. The "rule" is entered in the form of a logical relation. To evaluate possible conditions as either true or false, a logical relation uses the symbols = (equals), > (greater than), < (less than), >= (greater than or equal to),

<= (less than or equal to). In Robbins's example, he has to determine if the total charges are greater than \$50. When written as a logical relation, that rule looks like this:

SUM(B3:B14) > 50

The IF() function uses all three elements of the problem to produce a single formula. First it begins with the logical relation, that is, the rule. The rule is followed by the calculation that should be used if the rule evaluates as true (if the sum is greater than \$50). Finally, the last part of the formula is the calculation that should be used if the rule evaluates as false (if the sum is exactly \$50 or less).

The completed formula, then, for each charge account's subtotals should look like this (see figure):

IF(SUM(B3:B14)>50,SUM(B3:B14)*0.75,SUM(B3:B14))

If you said this formula in words, it would read: "If the sum of cells B3 through B14 is more than 50 dollars, then multiply the sum of cells B3 through B14 by 75 percent, or else find the sum of cells B3 through B14."

By entering this formula and copying it into the subtotal cell for each of the columns,

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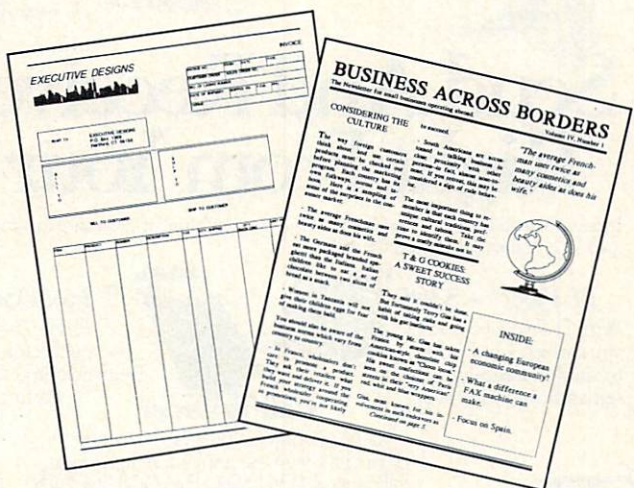
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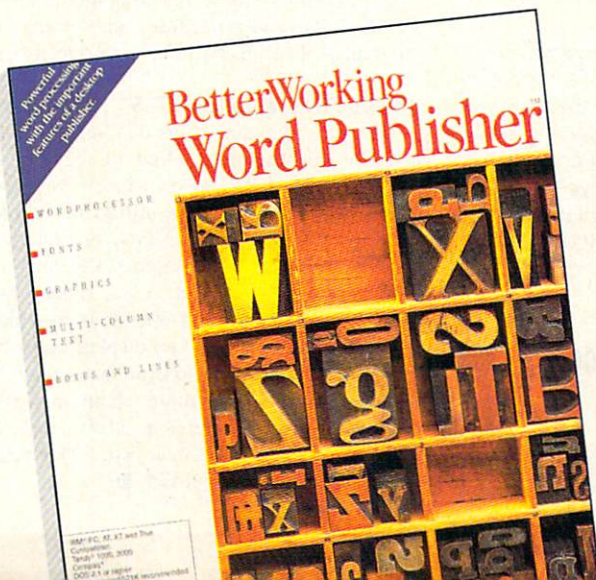


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CIRCLE READER SERVICE 57

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Robbins created a worksheet that can automatically decide when the discount should be applied to the month's charges and when it should not be used.

Note: For those of you using either Lotus 1-2-3 or a compatible spreadsheet, the IF() function described above would read (on a single line):

```
@IF(@SUM(B3..B14)>50,  
@SUM(B3..B14)*.75,  
@SUM(B3..B14))
```

If you're using Microsoft Excel on the Macintosh or under MS-DOS, the IF() function would read (on a single line):

```
=IF(SUM(B3:B14)>50,  
SUM(B3:B14)*75%,  
SUM(B3:B14))
```

MORE BENEFITS OF SPREADSHEET DECISION MAKING

The IF() function can be used with text as well as numbers. After seeing how well the function helped him calculate discounts, Robbins added a label cell at the bottom of each column that told him at a glance whether or not the customer had earned a discount. The structure of the rule is similar to the example above, but the two other parts differ. Here's how the formula for text reads:

```
IF(SUM(B3:B14)>50,  
"25% Discount","NO Discount")
```

If you said this formula in words, it would read: "If the sum of cells B3 through B14 is more than 50 dollars, then put the text '25% Discount' in this cell, or else put 'NO Discount' in this cell."

The advantage of the IF() function is that it transfers the burden of making the decision about discounting the charges from Robbins to the computer. This means that Robbins can enter the data into the columns without needing to be concerned with whether or not the customer has reached the discount plateau. This illustrates one of the most important principles of effective computer usage. Whenever possible, let the computer remember the rules and procedures and reduce the amount of detail that you have to remember.

PRODUCT NEWS AND NOTES

Are you like many users of Lotus 1-2-3—tired of constantly scrolling to see all the cells of your large worksheets? Then you might want *SeeMORE*, a utility that works with your CGA, EGA, VGA, or Hercules graphics adapter to compress the size of worksheet cells so that more appear on-screen simultaneously. Depending on which adapter you have, you can display up to 58 rows by 180 columns (up from the normal 25 by 80). To find out more about this \$80 product (*Symphony* version, \$100), contact Personics Corp., 63 Great Rd., Maynard, MA 01742; (508) 897-1575. ■



The Wave of the Future

BY JOHN A. WIDLICKA

Director, Alternate Channel Division
Ricoh Corporation, Copier Products Group

Three years ago the home office market was just a "speck on the horizon". But, today's government studies show that there are 23,000,000 people who currently work full or part time from their homes and require a range of office products.

These figures alone support the fact that the home office's "ship has indeed come in". And, with it comes the government's revised projections that by the year 2000, more than one-third of our nation's total working population will be working from their homes in either a full or part time capacity.

Because of these promising forecasts, manufacturers of office automation equipment like Ricoh have recognized the need to produce reliable, high quality office products that will enhance personal productivity in the home office.

Today's home office worker doesn't just demand copiers, computers and typewriters; they're expecting products the likes of facsimile, desktop publishers, scanners and printers which will be competitively priced, will be modular in design and interconnectable, and will streamline their operations.

Remember, in the home office market, we are dealing with a consumer group that is not only ergonomically and manpower limited, but is also highly sophisticated and well educated concerning their office equipment buying needs.

The doctrines of the home office worker dictate that they produce as much as possible, as quickly as possible AND produce all of their work in a space sometimes no larger than a converted walk-in closet. Additionally, the home office worker's clients expect the finished product to resemble one produced by a multi-million dollar Fortune 500 company.

It's a tall order, but that is the wave of the future for the home office worker.

Our goals as office equipment manufacturers should be to supply the most affordable, highest quality products to

this market. Products that are modular and interconnectable by design, which in today's nomenclature translates into "DIGITAL".

Ricoh Corporation has a proud heritage of producing digital equipment that is second to none. As the innovator of high speed digital facsimile equipment, and a major contributor to dry toner copier machine technology; Ricoh's products are backed by a long standing tradition of reliability and excellence.

Ricoh's reputation for quality dates back to 1975 when Ricoh Company, Ltd. captured the first prestigious Deming Award. Named for Dr. W. E. Deming, a statistician and quality control consultant, the award honors companies that have achieved outstanding results through the implementation of statistical quality control management.

Of the four times the prize has been awarded in the field of precision engineering, Ricoh has won it twice. First, in 1975 and then again in 1979. Today, Dr. Deming's standards act as the guiding criteria for all of Ricoh's products.

Ricoh's past and present success is sweet, but we don't plan to "rest on our laurels". We've begun to establish a new standard for quality in the home office market, and we plan to continue this trend by aggressively marketing our new LR-1 and RF800 personal/portable copier and facsimile products.

Our new personal/portable copiers and facsimiles along with our profit programs, are beginning to take the home/office market by storm. All of these products have been positioned for sales by consumer retailers, NOPA, limited line NOMDA dealers, and for sale to home/office consumers. And, if the consumers' reception at CES in June was any indication, Ricoh's LR-1 and RF800 products will become THE standard for quality, profitability and reliability in the home office industry.

In an industry so highly charged with growth as the home office industry currently is today, it is not at all unusual to find the consumer needs outstretching the manufacturers product offerings.

Since government figures project that one-third of our work force will be home/office employed by the year 2000, what potential products must be produced to satisfy the increasing needs of the home/office worker?

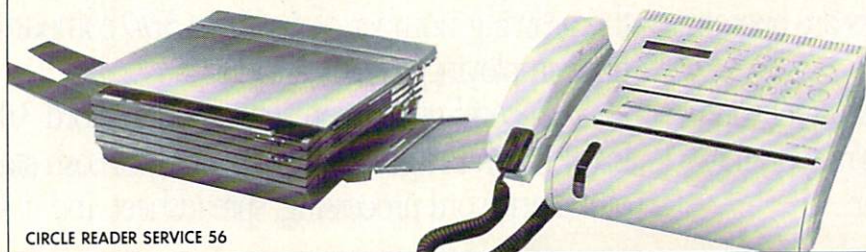
Since Ricoh invented digital facsimile technology, we have always stayed on the leading edge of technological development which includes modular and interconnective products. Today here in the U.S., Ricoh Corporation markets the MC50, a hand-held copier that can also work as a facsimile over public service telephone lines with a modular jack. Our MC50 is just the size of a pocket notebook and can also scan images and text into personal computers. Primarily designed for the traveling executive, the MC50 is a natural for the home/office too.

In the future, the home office worker will become more cost and feature conscious, demanding better features, quality and reliability for the price. But that never-ending trend aside, home office workers will require modular office equipment with interconnectivity between pieces of equipment. Ricoh Company, Ltd. has just finished a prototype model of a color video telephone. In the foreseeable future, as video telephones become more widely used, Ricoh plans to design its color video telephone to communicate with fax machines, personal computers and other digital office equipment.

"Multifunctionality" will be the watchword for the home office of the future. Digital copiers that can scan images as well as act as receiving and transmitting facsimile machines are already in the prototype stages. Admittedly, these machines are today too large and expensive for the home office worker; but they will undoubtedly be scaled down, streamlined, and condensed in size and price to one day fit the home office market.

Remember, two years ago, a Ricoh fax machine weighed as little as 30 pounds. And, at the time, it was considered revolutionary. Today, Ricoh Company, Ltd. has two fax machines, a hand-held copier and an overhead projector that have a combined weight of 26 pounds. In essence, this is what digital technology has done for us, it's allowed us to create smaller, lighter and faster office machines with price tags that actually drop instead of rise.

Ricoh Corporation is in the home office to stay and is anticipating and planning for the future expected growth this market will experience. It's the wave of the future, and Ricoh plans to be the first to finish the race.



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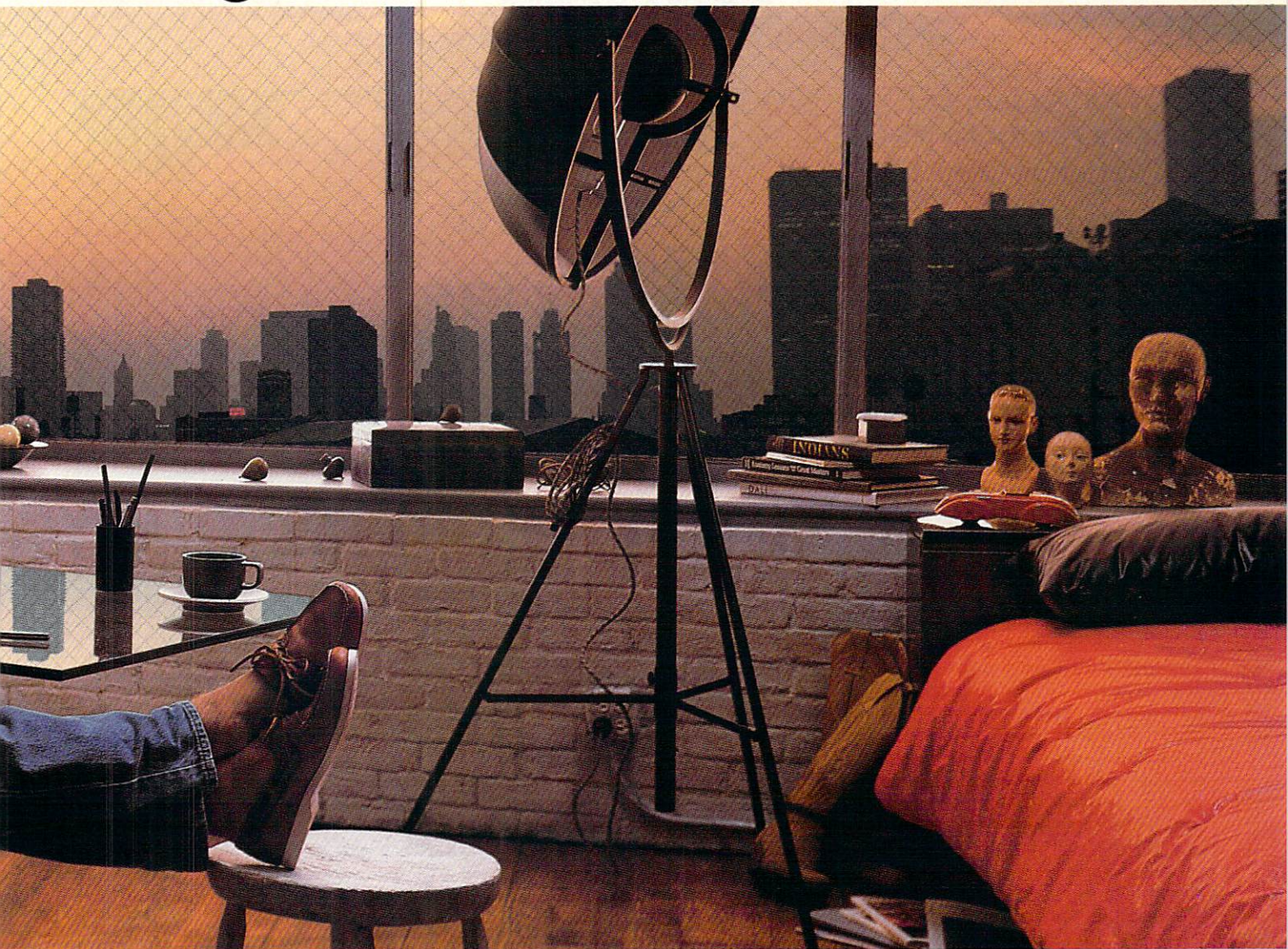
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Manage Information the Way You Think

BY HENRY F. BEECHHOLD

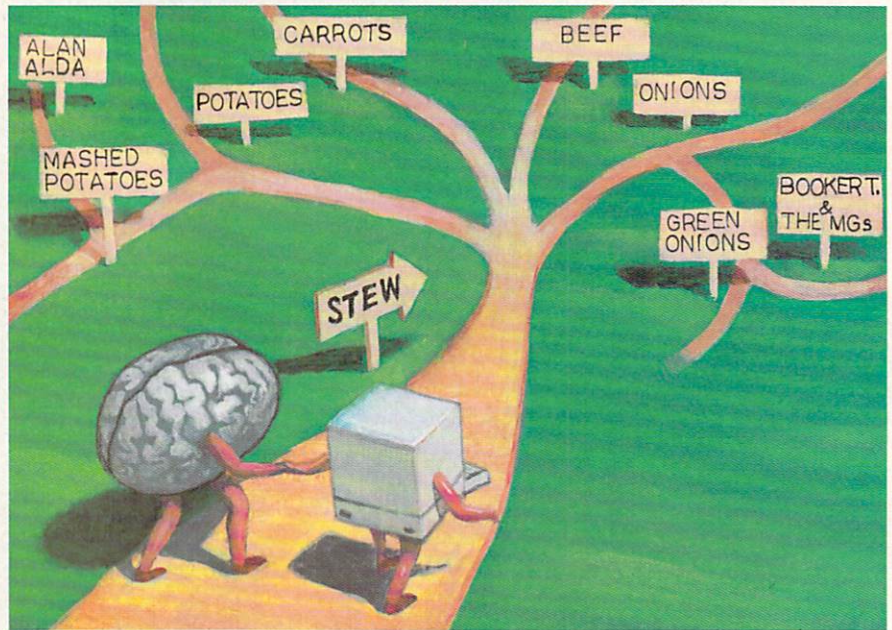
Hypertext: An Emerging Software Frontier for MS-DOS And Macintosh Computers

Imagine that you want to give a potential client a picture of your business services—perhaps market research or software training. Now imagine that you've collected the information on stacks of cards, each of which contains a key point. What you have is a kind of "flip book," a commonly used sales tool. Card 1 points to card 2, which points to card 3, and so on. Printed brochures are set up in the same fashion. As a way of defining a basic task, revealing a simple structure, or making points about a product or service, this method of communication has great merit.

But let's say that you want to take your client on an in-depth tour of your services. And along the way, suppose he or she asks questions, the answers to which may be stored somewhere in your stack of cards. You could riffle through either the cards or your memory in the hope of finding what you're seeking. But remember that, although you know your business, you cannot be expected to have every detail, every cost, every schedule right at the tip of your tongue. Besides, your physical card stack or flip book is of necessity not large. Imagine, however, that you could instantly call up on your computer screen any bit of information a client might reasonably be expected to ask, and that you could not only display that information but display implications, variations, and elaborations. This interruption in the linear flow of your flip-book presentation mimics the normal workings of the human mind. In short, we tend to think in a round-about or branching fashion, not in straight lines. Wouldn't it be useful if the computer could in some way follow?

HYPertext THREADS THROUGH INFORMATION THE WAY A HUMAN MIND DOES

With hypertext, this aim can be realized. Hypertext software provides for the human



element in the management of information. When using a hypertext program, you thread through masses of information to find what you want, occasionally stopping to examine items more closely, occasionally branching off to areas remote from your starting point. This free-style approach to the world of information is an important part of creativity. Hypertext is thus like a stack of cards—hence "stackware," a term coming into popular use to describe hypertext databases, notably with *HyperCard* on the Mac—that can be electronically riffled through any way you wish. Yet hypertext databases are unlike cards because the information on one card (screen display) can be used as a pointer or link to information located elsewhere in the current stack (database) or in other stacks.

For example, you can move from a listing of your basic market-research services on one screen to a discussion of a particular service to illustrations of practical scenarios to costs for any service to statistical methods to auxiliary services to sample reports to biographies of involved personnel to research modeling techniques, and on and on. The particular pattern of branches is not stereotyped—that is, you can follow a different trail according to the needs and interests of each client (often called threading).

HYPertext IN ACTION—ASKSAM

Since hypertext analogizes the way our minds normally work (that is, not in a straight line but in several dimensions at once), hypertext can be considered a thought machine. Some have claimed that the hypertext idea is one of those crucial ideas in intellectual history, akin to the development of the printing press or the computer itself. Hypertext is a key tool for thought, and one can easily appreciate the depth and flexibility that it can bring to every aspect of information management. No longer are we tied to data arrangements as predetermined by the programmer. The hypertext principle allows us to go where we wish along any road we want to travel. Hypertext surely provides a powerful justification for the micro computer, for here is a case where the mind and computer can creatively work together to accomplish results hitherto unfeasible if not impossible.

Looked at another way, hypertext is: (1) a free-form software environment; (2) an information organizing system; (3) an information retrieval system; and (4) an applications generator or authoring system. The free-form concept means that you, the creator of the database, can enter information according to any plan you have decided is useful. You

HENRY F. BEECHHOLD is a contributing editor for HOME-OFFICE COMPUTING.

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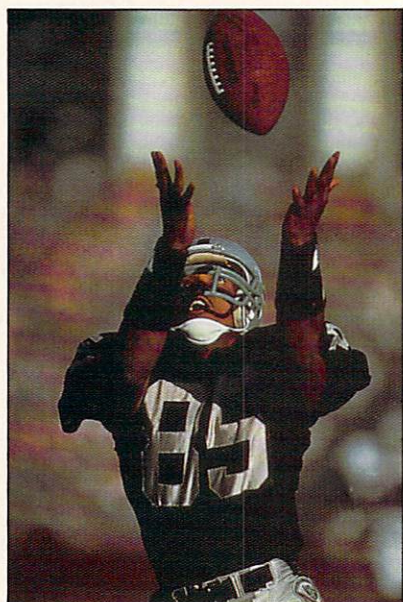
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Selected Hypertext Software

AskSam v4.1 (\$295). While *askSam* was only a free-form database in earlier versions, the current 4.1 adds hypertext capabilities for linking key words or phrases in one file to associated textual information in the same or another file. *AskSam* helps you create databases that allow you to move through separate files as though file boundaries didn't exist. For example, a simple tickler file to remind you of appointments or things to do can be linked to any other file. With such links, your appointment tickler can act as a menu into a wide range of data about the client with whom you have an appointment. *AskSam Systems*, (800) 327-5726; (904) 584-6590. *Requires: 256K IBM PC or PS/2 (384K recommended); one drive (hard-disk drive recommended).*

Guide v2.0 (\$275, MS-DOS; \$200, Macintosh). Available in both MS-DOS and Mac versions, *Guide* is a tool for creating "Guidelines," hypertext files that combine textual and graphic data. While you can print out data, the program is best used on-screen (as is true with all hypertext programs), which allows you to jump around as needed. The Macintosh *Guide* package also includes a memory resident ver-

sion, *MiniGuide*, which lets you read Guidelines as you work with other programs. For MS-DOS users, the *Guide Reader* also lets you read Guidelines, but it's not memory resident. *Owl International*, (206) 747-3203. *Requires: 640K IBM PC or PS/2 (with 80286 or 80386 microprocessor), 512K Macintosh; two drives (hard-disk drive recommended).*

HyperCard v1.2 (\$49, or free w/Macintosh). Sometimes names are confusing rather than revealing. Take *HyperCard*. While it certainly gives you the hypertext capability of linking textual and graphic data on different screens or in different files, *HyperCard* is not solely a hypertext application. You can also use it to create other applications in a more traditional database format (or even non-database applications such as stories and games). Nevertheless, *HyperCard* stands as an excellent introduction for many people to the special linking qualities of hypertext that let you follow your train of thought, rather than being derailed by the detailed, preset structure of a standard database. *Apple Computer, Inc.*, (408) 996-1010. *Requires: 1MB Macintosh; two drives (hard-disk drive recommended).*

don't even need a formal plan. Just type in whatever you want in any order. Then create the links among relevant pieces of data.

As an illustration, let's look at *askSam* (see box, "Selected Hypertext Software"). In its original versions, *askSam* was solely a free-form database. With versions 4.0 or later (4.1 is the current one), the publishers added a hypertext capability. An ordinary *askSam* record is a screen page containing any information you wish to enter. With the *askSam* hypertext mode active, you can move the selection cursor (a lightbar) to any item in a record—a word, group of words, file name, or the *askSam* program name—press ENTER, and immediately a new screen will appear with information about the selected item. You can move from that new screen to any other screen with other information.

Any record in the *askSam* database can become a menu for selecting other records sharing some common element (a word or phrase, for instance). *AskSam's* hypertext lets you create databases that allow you to move through files as though file boundaries didn't exist. Whereas standard relational databases simply retrieve information across files according to certain criteria ("retrieve all cases of A within the limits X and Y and insert into B"), hypertext requires no relational operators and imposes no restrictions on the breadth and depth of the search. You can thread entities according to real-world logic. So a simple tickler file can be linked to any kind of information source: biographical data, technical data, financial data, or work schedules, for instance. And your appointment tickler can then act as a menu into a wide range of information about the client

with whom you have an appointment and that information might include in-depth reports related to the appointment. These reports, in turn, can open into other areas to any depth you choose. The depth is, of course, limited by what you have already entered into your database files. The more you put in to start, the more possibilities there are. Be warned, however, that data is space hungry and that you cannot take advantage of the real power of hypertext without a good-size hard disk. I've been using *askSam* with a 30MB disk, but I can see the end in sight and I want a larger disk drive.

IS HYPERTEXT FOR YOU?

Hypertext threading is intuitive, both in design and use. Freedom, however, has its price. Since it's possible to wander all over the informational universe with hypertext, you have to take some care with the development of hypertext applications. The more storage you have, the better. Of course, if your database needs are limited to stereotyped fixed-field information—names, addresses, phone numbers, and the like—then a hypertext facility won't be of great value. On the other hand, it may well be the case that your databases are unduly restricted and a rethinking of the database idea (with hypertext in mind) will lead you to a new, far more flexible information-handling system.

If you've ever felt constrained by your present information management practices or wished, for example, that you could store in one place all of the pertinent information about your business—financial, physical, and operational—and then explore the information in any way that makes sense to you. Hypertext may be just the ticket. ■

FINISH FINANCIAL WORK FIVE TIMES FASTER.

ALL NEW!
For Business and Home

Quicken finishes
all this in
under 5 minutes!



Introducing Quicken® Version 2—absolutely the fastest, easiest way to write checks, keep financial records, track income and expenses, budget, and manage your cash flow. It's ideal for business and personal use.

Now, Finish Financial Chores in Seconds.

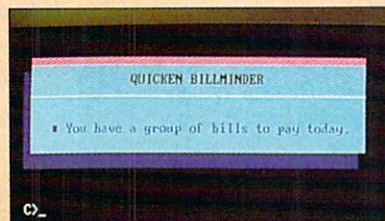
Quicken completes your financial work 5 to 8 times faster than ever before:

- Analyze budget vs. actual expenses by month for 12 months: 4 seconds
- Look up a check you wrote 1000 checks ago: 1 second
- Write and print 20 checks and update all records: 3 minutes
- Compile an itemized list of tax deductions for the year: 3 seconds

How can it be so fast? Quicken uses indexed files and speed-optimized C and assembler code—the very latest in high-speed technology.

So Automatic, It Eliminates Work.

Quicken's fully automatic "macros" eliminate repetitious clerical work. Macros



Quicken remembers the bills you forget.

remember your bills, print your checks, and update all records automatically. All you do is sign the checks.

In fact, Quicken is so automatic it reminds you to pay your bills even if you forget to use it! Simply turn on your hard disk PC, and Quicken's pop-up Billminder™ appears when you need to pay bills.

No Need to Alter Your Bookkeeping Procedures.

Quicken is easy to use because it works just like your checkbook. There's no need to change your bookkeeping format or learn anything new—no accounting jargon, no "debits," no "credits."

Quicken also comes with comprehensive on-line help, a complete manual, and free technical support.

Here's what the critics say:

"I've never seen such an easy-to-use manual or software that's so simple to use." Martin Blumenthal, in *Cider Magazine*

"Extremely simple and fast"

Esther Dyson, Industry Analyst

"Absolutely the best small accounting program made!"

Bob Schwabach,
Universal Press Syndicate

New Features for Business.

Quicken provides special sections for businesses covering payables, receivables, cash flow forecasting, payroll, petty cash control and job, client, and property bookkeeping.

If you're a doctor, property manager, accountant, consultant, or manage any type of small business, and you write checks, Quicken will save you time and money starting today.

Free 30-Day Trial.

Try Quicken. If you're not 100% satisfied, return it within 30 days and pay nothing.

Specifications

Software Compatibility: Exports data and reports in ASCII.

Also exports in Lotus® format with optional Transfer Utility.

Hardware Compatibility: All IBM® PC, AT, PS/2® and compatibles with 256K RAM and DOS 2.0 or higher. All printers. All monitors. Also available for Apple® IIe, IIc and GS with most of the same features.

Capacity: Number of bank accounts: unlimited.

Number of transactions: unlimited. Maximum amounts: \$9,999,999.99. Number of income/expense categories: 250 with 256K, thousands with 512K RAM.

Other: Not copy-protected. Checks are approved for all financial institutions in the U.S. and Canada.

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Intuit Code FC-11/88

Library at Your Fingertips

BY JOHN H. EVERETT

Dialog Gives You Immediate Access to More Than 150 Million Items of Information

Dialog is arguably the oldest and largest on-line database service. It contains a world of information—over 300 specialized databases containing newspaper, journal, and magazine articles that cover virtually every professional, scientific, and academic field.

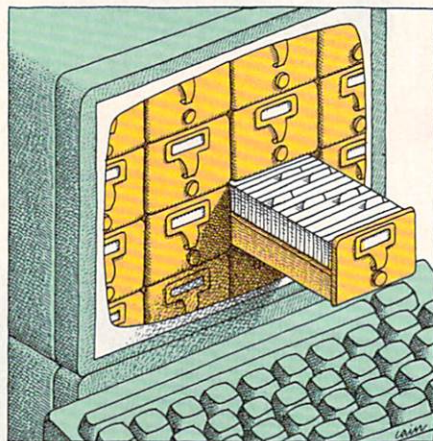
The appeal of Dialog extends beyond librarians and researchers. Without having to wade through every journal in a given field, a business can immediately access market data and research.

The very things that make Dialog so valuable—the enormous amount of data online, the power and flexibility of the search commands, and the variety of topics covered and sources used—also make Dialog difficult to use effectively and efficiently. At \$15-\$300 per hour, you could spend all your retirement money on Dialog and still come away with little in the way of useful information.

Help is available. Dialog Information Services, the corporation behind the information, offers classroom instruction in the use of the service, and some companies that publish databases on Dialog offer classes on using them. A useful feature for the novice is the ONline Training And Practice files (ON-TAP). These files are mini-versions of corresponding complete files available on Dialog. You can search these smaller databases, learning the system and commands. At \$15 per hour, it's the least expensive place to make your mistakes. Once you're familiar with the way a given database works, you're ready to try your luck on the full-size version.

A WALK THROUGH DIALOG

What you see when you sign on to Dialog may surprise you, even if you're accustomed to using one or more of the consumer-oriented on-line services such as CompuServe or GENie. You are greeted with a series of messages on the current status of the system (this database is down, that one has recently



been updated). You're given the Dialog prompt, a question mark, and from there, you're on your own.

Your first task is to reach the proper database for your purposes; you do this by asking Dialog to "begin" searching the database you want. Once there, you tell Dialog what it is you're looking for, using Boolean search logic to construct your query. This allows you to connect the various parts of your request by combining the words AND, OR, and NOT.

With these words, and the use of "proximity" restrictions (A should be within 5 words of B), you can construct fairly complex searches. Your request for a simple search such as all articles written by a Dr. John

EASIER ACCESS

Perhaps the best way to access Dialog is via the Knowledge Index service. Knowledge Index is an off-hours service offering access to 66 of Dialog's most popular databases. At an hourly rate of \$24, this service is relatively inexpensive. While not all of the sophisticated search options that you find on Dialog are available on Knowledge Index, you are given the tools you need to satisfy all but the most complicated information needs. Knowledge Index is a great way to get your feet wet without drowning in on-line charges.

Dialog also offers a few of its databases on CD-ROM. These are available with a yearly lease and allow you to supplement the information on the CD-ROM with an on-line search. But, of course, you'll need a CD-ROM drive.

For more information about the products and services mentioned in this article, contact: Dialog Information Services, 3460 Hillview Ave., Palo Alto, CA 94304, (800) 334 2564, (415) 858 3785.

Smith about Waardenburg's Syndrome and heredity might look something like this:

(AU=SMITH, JOHN) AND (WAARDENBURG (5W) HEREDITY)

The system would then tell you how many articles fit your search request, and you could look at abstracts of those articles (or the full text of them, depending on the database) and order reprints of the actual articles from a document delivery service.

Not all searches are this basic. Since the meter is always running when you're on-line, you should do as much preplanning as possible, keeping your actual on-line time to a minimum. Before you dial onto the service, develop an initial search request and think through your next step or two, which will depend on the response to your initial request. When you're on-line, interacting with the system, you will have to react immediately to unexpected results. If all else fails and confusion sets in, you can always log off and think it over.

OTHER FEATURES

If this sounds like too much work, there are easier ways to gain access to some of Dialog's information. Dialog Business Connection and Medical Connection offer menu-driven, user-friendly access to a subset of databases relating to either business or medical topics. If you want to limit your access to one of these fields for a session, these services are a good choice.

Dialog also offers an electronic mail feature called Dialmail, a convenient subscriber-to-subscriber message service. Dialmail is not as sophisticated as some other electronic mail services, but Dialog is committed to improving it, so you can look for future enhancements.

There is no initial charge or monthly minimum for Dialog, though there is an annual service charge of \$25 per password. At the time you subscribe, you can purchase a package for \$150 that includes the complete system documentation, \$100 worth of on-line time, and the full-day training session. The documentation and the training session are necessary for even the most basic use of the service.

Dialog is not cheap. But if you have a need for specific, thorough, and up-to-date information, it's a useful tool. ■

JOHN H. EVERETT, co-author of *Information for Sale: How to Start and Operate Your Own Data Research Service* (Tab Books, 1988), can be found on the Working From Home Forum on CompuServe.

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Telephone Services That Mean Business

BY LISA WU

A Sampling of Professional Phone Service Options For Your Home

When you bid farewell to the corporate world to set up shop at home, there are a number of corporate luxuries you have to kiss goodbye. But professional telephone service shouldn't be one of them.

Whether you work in an office building or from a suburban home, your telephone is your lifeline—connecting you to such people as clients, customers, and co-workers. And whether you run a business from home or use your home office as an adjunct to a main office, you can work with your local and long-distance telephone companies to select a package that's right for you. Some regional telephone companies offer discounted combination packages of custom calling services, such as U.S. West's Telechoice.

BASIC CUSTOM-CALLING SERVICES

First, we'll describe the most popular custom-calling features offered by the regional phone companies. You may be familiar with some of them. Be aware, however, that you'll need touch-tone service to take advantage of most of these services and that some may not be available in your area.

- Although some callers may complain that using **call waiting** is rude, it's one of the most popular phone options. Instead of the caller getting a busy signal when you're on the phone, you'll hear a tone that lets you know another call is coming in. You can then put your first caller on "wait" while you answer the second call. In selected areas you can **cancel call waiting** when you're on an important call and don't want interruptions.

- **Intercom service** lets multiple phones on a single line act as intercoms. If you're in your home office and need to communicate with your family, you dial your own number, listen for the busy signal, hang up, and all the phones on the extension will ring. When someone answers, you pick up your receiver and start talking.

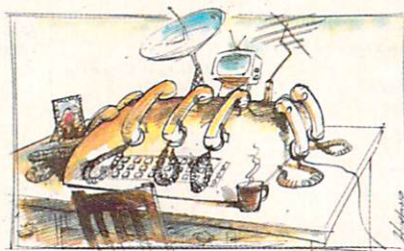
- You can use **call forwarding** when out of the

office to forward all your calls to another extension or phone number—even at another site in another city. If you don't want to receive all of your calls at the remote location, **selective call forwarding** lets you forward from one to three selected numbers.

- With **three-way calling**, you can set up a three-way conference call without operator assistance. Simply call the second party, put that person on hold, and dial the third party.

SERVICES FOR MULTILINES

As multiline phone systems become home-office necessities, regional phone companies are offering new and better services to customers. New York Telephone, for instance, offers **Centrex III**, a special group of services that provides options for multiline residences and businesses. The services include **call forwarding-busy**, **call forwarding-don't answer**, **three-way calling**, **call transfer**, and **call pick-up**.



- With **call forwarding-busy**, callers won't be frustrated by busy signals. When you're using the main line, incoming calls are automatically bounced to your second line.

- **Call forwarding-don't answer** lets you program your phone system to ring on one phone line a preselected number of times. If no one answers, it bounces the call to the second phone or line.

- **Call transfer** lets you transmit incoming calls to another telephone or line by pushing a few buttons. For example, you may have to refer a caller to someone else in your office. Unlike call forwarding, you must be at your phone to transfer the calls.

- With **call pick-up**, you can answer a call that is ringing on another telephone by punching in an access code.

HANDLE LONG DISTANCE SMARTLY

AT&T, MCI, and US Sprint all offer **dis-**

count plans on direct-dialed long-distance calls. Your savings will depend on the volume, distance, and time of your calls and the plan you choose. AT&T, for instance, offers the **PRO America** family of services for a start-up fee of \$10 and a monthly fee.

- A **WATS** line, which stands for Wide Area Telecommunications Service, is a long-distance customized line that can save businesses hundreds, even thousands, of dollars a month. It's designed for callers who consistently make long-distance calls to a specific area. With a **WATS** line, you buy services that extend over a specific geographic area and are billed at one monthly rate per hour for all long-distance calls or according to each call.

- An **800 number** can help you expand your business territory. You choose the geographical shape of your 800 calling area by state and area code. Depending on which company you choose, start-up costs range from \$75 to \$100, and the monthly charges are based on the distance and the length of time of each call. Time-of-day and volume discounts apply.

- With **remote call forwarding**, customers outside your local calling area can reach you by dialing a local number, and the call will be forwarded to you. Remote call forwarding can help you establish a local presence in an area miles away from your business.

- If you bill clients for phone calls, you may be able to use **billing solution** from US Sprint. This option costs \$50 monthly (there is no start-up fee) and lets you designate up to 99 different codes for sorting long-distance calls. For example, you could assign code 00 for personal calls, 01 for Client A, and 02 for Client B. And your monthly bill will have a column specifying a code for each call.

A RING OF PROFESSIONALISM

We've mentioned just some of the ways that you can spiff up your telephone system to ensure that your home is ready for business. If you pick and choose from among these local and long-distance services, your callers should reach a professional, albeit "receptionist-less," phone network each and every time they call your home office. Gone will be the complaints of busy signals and unanswered rings. Now, if only the phone companies could find ways to open your mail, greet your visitors, and screen your phone calls. ■

LISA WU is an assistant editor at HOME-OFFICE COMPUTING.

How to get more day out of your day.

Oh, for a few more hours in the day. Enough time to return calls, be up-to-date and informed with each contact, write letters, keep appointments and get a jump on the competition.

Now there's a product that manages your time, your contacts, your *business* like nothing else on the market today. In fact, it allows you to work with two to three times more people. We call it ACT!



and features editable pop-up windows that eliminate repetitive typing.

Home-Office Computing says ACT! is "the standard by which all activity trackers should be judged." Our users say it's incredible (many have increased their business by 50% or more).

To find out why, order **ACT!** our video tape demonstration.

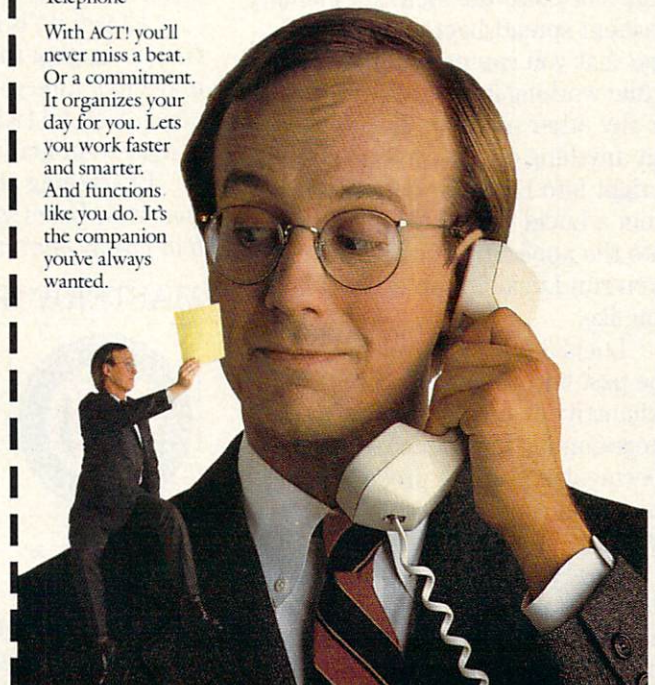


For each contact, ACT! puts all the information you need right in front of you. And it's so flexible it lets you define many of the data fields. Truly a custom fit.

To get a good look at the personal assistant that lets you work faster and smarter, send this coupon and a \$10 deposit to receive an informative video tape about ACT! Mail to Conductor Software, Inc., 9208 West Royal Lane, Irving, Texas 75063. Or call 1-800-338-2449.

Name _____
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With ACT! you'll never miss a beat. Or a commitment. It organizes your day for you. Lets you work faster and smarter. And functions like you do. It's the companion you've always wanted.



ACT! gets the job done.

What Lotus 1-2-3 did for people who work with numbers, ACT! does for people who work with people. It helps you do your job in record time. Want to write a letter? Push a single keystroke. ACT! types it for you. Want to search for information? Push another. There's no hunting or waiting.

With ACT!, you can keep an extensive file of contacts, maintain an unlimited amount of notes for each, record a detailed history of each account from initial phone call to up-to-the-minute memos, make simple and sophisticated queries, search for key words. You'll always be on top of your contacts.

ACT! is easy to get along with.

ACT! uses the kind of menus you're familiar with

Call toll-free 1-800-338-2449.

Lotus 1-2-3 is a registered trademark of Lotus Development Corporation.

CIRCLE READER SERVICE 24

Aggregate expenses for all departments for July 1989:

Advertising	\$1,100,585.00
Administrative	\$1,100,585.00
Operations	\$1,100,585.00
Manufacturing	\$1,100,585.00
Research and development	\$1,100,585.00
Total expenses	\$1,100,585.00

Fig. 1 Let's get the detail on those ad costs. Just move the widebar to that cell and press one key (Grey +).

Advertising July 1989

Magazines	152,294.00
Newspapers	123,875.00
TV & Radio	123,875.00
Skywriting	123,875.00
Total	473,929.00

Fig. 3 We want more detail, so let's go to Newspapers. Just press the Grey + key.

Advertising July 1989

Magazines	152,294.00
Newspapers	123,875.00
TV & Radio	123,875.00
Skywriting	123,875.00
Total	473,929.00

Fig. 2 Here we are, instantly. Notice the lower left corner showing we are on level 2. You can go down or up.

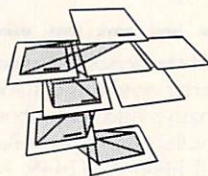
Newspapers July 1989

Washington Post	21,944.00
Dallas Morning News	14,888.00
New York Times	24,503.00
Chicago Tribune	17,654.00
Miami Herald	1,875.00
Los Angeles Times	11,065.00
Total	92,935.00

Fig. 4 Now, instantly we are on level 3. Each level is a different spreadsheet. You could now move to the New York Times and see the detail on that figure. There is no limit to the levels you can go. Move right down to transaction level if you like.

Everyman's Spreadsheet

User testing of Lucid produces the same results over and over. People tell us they would never work without Lucid 3-D™ again. Even folks continuing to work with 1-2-3.



POP-UP

That's because the idea of a memory resident spreadsheet makes sense, one that you can pop-up instantly while working in your word processor or any other program. Lucid lets you cut anything on the screen and paste it right into Lucid, or cut anything from a Lucid worksheet and paste into the application below. You can even run Lucid on top of 1-2-3 if you like.

Lucid 3-D™ was developed over the past two years with countless, exhaustive hours of planning and programming to produce something spectacular. This is a product that works the way we dreamed a spreadsheet would function.

Steve Morgernstern, reviewing it in Family and Home Office Computing, rated Lucid 3-D™ excellent, saying "It does things the others simply can't do—and does them with enough slickness and style to make it a winning choice." You'll see, Lucid is exciting.

WHAT MAKES LUCID 3-D™ SO SPECIAL

In the screen examples you can see Lucid is really three dimensional. Any cell of the spreadsheet can contain a complete other spreadsheet that you can access with a single keystroke. It is as simple as the pictures show. And you don't have to write formulas to do it.

All you do is look at the other file, navigating through easy, point and shoot directories. When you come back up (with one key) the link is made automatically for you.

Everything about Lucid works that way. Users say, "It is so intuitive that I really don't need a manual."

MASTERWORK



WINNER OF
PC MAGAZINE'S 1987
AWARD FOR
TECHNICAL EXCELLENCE

We could go on at great length about all the features and innovations in Lucid, but Lucid is more than a bag of features. What is most important is the pride and craftsmanship that went into its creation. It is a masterwork. The overall feel is tight and polished. In fact Paul Somerson, editorial director of *PC Computing*, used one word to describe it—"Slick."

"I've been calling it an 'Everyman's Spreadsheet', and I think that's how the market will position it. It's much more than an inexpensive alternative to 1-2-3."

Jim Seymour, Columnist
PC Magazine, PC Week

We are excited about Lucid 3-D™. But don't take our word for it, take us up on our 60 day offer. Call us on our order line number and we will ship your order the very next day. This \$149 offer will end soon — the list price is \$199. But in the meantime we invite you to try Lucid as part of our "spread the news" campaign. Just pick up the phone and call us. We accept all major credit cards or you can order COD.

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How Small Businesses Borrow Big Money

Advice from Borrowers and Lenders on Bankrolling Your Growing Venture

BY PATRICIA DREYFUS



PHOTOGRAPH BY JOSEPH BERGER

Sophia Collier stands behind her business and Soho Natural Soda, now distributed internationally.

SNAPSHOT

SOPHIA COLLIER

BUSINESS: American Natural Beverage Corp.—maker and distributor of Soho Natural Soda

START-UP DATE: 1977

MONEY BORROWED: \$20,000 commercial bank loan; \$60,000 SBA loan

GROSS INCOME: \$30 million

The story of Sophia Collier, founder and president of American Natural Beverage Corporation in New York City, is a fairy-tale come true for home-based entrepreneurs. This year sales of the company's Soho Soda will top \$30 million, but a decade ago Collier was just a 21-year-old Woolworth's clerk with an idea. Sweltering in her Brooklyn kitchen in August 1977, Collier craved a soft drink.

PATRICIA DREYFUS is a freelance writer living in Brooklyn, New York. She has written a variety of articles on business and financial topics for such publications as *Money*, *Forbes*, and *Sylvia Porter's Personal Finance*.

The kind she wanted—an all-natural soda that would satisfy her desire for preservative-free foods—didn't exist.

As one who had already written her autobiography, *Soul Rush*, at age 20, Collier was not about to waste time. She concocted her first soda using fruit and seltzer from her local grocer. Neighbors responded enthusiastically to the samples she distributed. Convinced she had hit upon a profitable idea, she pooled \$10,000 in royalties from her book with another \$20,000 from two friends and began visiting bottlers. The first year in business, American Natural had profits of \$1. "We had so little money we could only park at meters that had money already in them,"

recalls Collier of the days when she and her partner, Connie Best, distributed Soho Soda from their Jeep.

Finances were only marginally better a year later when Collier decided to apply for a commercial loan. Bringing two years' tax returns for the business as her only financial statements, she convinced Chemical Bank to lend her \$20,000. When she went back for another \$60,000 a year later, the bank balked, but Collier obtained the money through a direct loan from the Small Business Administration—at about half the interest rate the bank would have charged.

Sophia Collier had more going for her than just a good idea. She has the calm, authoritative manner of a doctor or college president. Blessed with a winning style, Collier added plenty of substance to her vision: hours of research in the public library put facts at her fingertips. She was able to bring a sizeable chunk of her own money to the enterprise. To stretch her funds, she persuaded her bottler to produce the first 50 cases of soda on credit. Later, she talked a high-priced illustrator into designing labels in return for a royalty instead of a fee.

A TOUGH TASK FOR THE HOME BASED

Collier's combination of confidence, knowledge, and resourcefulness make her an ideal example of entrepreneurial success. Owners of home-based businesses often have trouble obtaining commercial loans from banks. "Fewer than 10 percent of home-based businesses end up getting a loan," cautions Steven Seabourn, an officer in the commercial loan department of the Texas American Bank in Amarillo. "The owners lack experience, they lack equity, and they lack a plan."

A home-based business does have some advantages, though not necessarily from a banker's point of view. You can deduct part of your rent or mortgage as a business expense, together with much of your utility and phone bills. Without having to worry about meeting rent payments on your work space, you are freer to set your own pace and often have more time to spend with your family.

A drawback: Home-based businesses tend to have only a handful of employees, most of them part-time. That's exactly the type of firm that is most often rejected for a loan, according to a recent study by Interface, a New York City research group.

If a home-based business is hard to finance, finding money for a start-up is next to impossible. In the Interface study, 78 percent of banks said they rarely fund a start-up; 44 percent said they never do so. "The way to finance a start-up is with personal credit, because the bank is really relying on the integrity of a person rather than the viability of a business," says Calvin King, a commercial loan officer who works with small businesses at Lincoln National Bank and Trust in Fort Wayne, Indiana.

In most cases, owners of home-based businesses have to grow their own seed money by

The Anatomy of a Loan Proposal

Just as doctors must learn the intricacies of the human body before they are trusted with a patient, small-business owners must learn the ins and outs of their businesses before lenders will hand over funds. Your business plan and professional credentials must be outlined in a loan proposal and presented to a financial lender to prove that you have the skill of a surgeon when it comes to maintaining the health of your business.

A loan proposal is primarily a selling document that is used to raise investment funds. According to Peter Poulin of Poulin & Robustelli, P.A., a certified public accounting firm in Lewiston, Maine, which specializes in preparing loan proposals for small businesses, "The objective in preparing a loan proposal package is to anticipate the questions a banker will ask." You may have only one chance to make a good impression with a financial lender. Your loan proposal is the document that bankers look at to analyze the potential of your business. Presenting the answers to a lender's questions before he or she asks them shows that you're serious about your business and are clear about your business's financial needs. "This speeds up the process and allows the lender to be the friendly banker he or she wants to be and contributes to a better relationship between lender and borrower," says Poulin, whose firm has nearly a 100-percent success rate in recruiting funds for its small business clientele.

A lender's main interest is your business's ability to repay the loan. He or she wants to know how much you want to borrow, what you want the money for, when you will be able to repay the loan, when you will be able to pay the interest, if your business can survive a setback in its plans, and what security is available for the loan. A lender is also interested in how you will repay the loan if your business can't. Your loan proposal should clearly and concisely outline these points. Use the following list as a guideline when preparing your loan proposal. (This list was compiled using a sample loan proposal from Poulin & Robustelli and from the Small Business Administration workbooks, *Your Business Plan* and *Financing Your Small Business*).

Title Page and Table of Contents. The title page should simply list the name of your company and the title of the document (for example, Loan Proposal). A table of contents is useful for a proposal with 30 or 40 pages.

Loan Summary. Provide your name, address, the name of the company, and the amount of the loan requested. Also provide two brief

paragraphs that state (a) the purpose of the loan and (b) how you can expect to repay it.

Business Fact Sheet. Provide a brief profile of the company, its purpose, age, legal organization, employees, and a summary of key financial facts—recent sales, margins, and any key assets or liabilities. If relevant, note any prior loans with the bank and the company's history with the bank.

Proposal for Funds. Describe in more detail the type of loan you are requesting, why you need the funds, how they will be used, what value they will produce, and how and when you will repay them.

Executive Profiles. Enclose a résumé of the business owner or short descriptions of key business members. Include past experience, present role, skills, and any other information that reinforces each person's professional standing and character.

Personal Financial Statement. List your assets (such as cash on hand and in banks, stocks, real estate, automobiles, and personal property), liabilities (accounts payable, notes due to banks, and unpaid income taxes, for example), annual income, and total net worth.

Financial Projections. Financial projections are the heart of financial strategy. They force you to be explicit about your business. You must make assumptions about future trends and outline best, most likely, and worst-case scenarios. Bankers may insist that you project five years into the future when applying for a five-year bank loan. In any case, you should be able to make fairly accurate projections of what your business will do in the next 12 months and come close on your assumptions for months 13-24. Do monthly projections the first year, monthly or quarterly for the second, and yearly thereafter. Include forecasted balance sheets, income statements, cash flow statements, cost of goods sold, operating expenses, and an explanation of the assumptions in each calculated projection. Also include the name of the person who prepared these statements if it is someone other than yourself.

Past and Current Accounting Statements. These may include your personal income-tax statements as well as your company's statements for the past three years.

When your loan proposal is complete with all of the above features, you should spend several hours going through your document and rehearsing the oral presentation that will accompany your written request for funds. With such careful preparation, you will feel relaxed and confident that your professional approach will win you respect and money.

—KAREN KANE

borrowing from relatives or friends. As so often happens in life, those who have, get. Without a personal financial stake—known as equity—you can count on almost certain and quick rejection by commercial lenders. "The biggest reason we turn down loans is that people don't have the necessary capital," says Seabourn. "Depending on your management experience, we generally lend 30 percent to 75 percent of what you need."

Some entrepreneurs use home equity to

raise seed capital. Last year, Mary Ann Russo of Point Pleasant, New Jersey, borrowed \$5,000 against her house to start a business making oversized round beach towels. The virtue of round towels, Russo explains, is that you don't have to keep jumping up and moving the towel as you soak up the sun's rays. When she applied for a commercial loan for her company, M.A. Designs, Russo was told that it was up to the parent of a business to cover the costs in its

infancy. This year Russo, who works part-time as a nurse and full-time on her home-based beach towel business, will gross about \$15,000 from her towels.

GETTING A BANK LOAN: PERSONAL OR COMMERCIAL?

Obtaining a bank loan is easier if you have a track record in business, even if the track was in another field. That's what Dan Backenstose found out when he wanted to start a small furniture factory on his 27-acre farm in Buffalo Springs, Pennsylvania. Backenstose makes reproductions of 18th and 19th century Pennsylvania Dutch and Shaker designs, which he sells by mail order and from his shop in the farm's former spring house. His

company, Spring House Classics, will have sales of about \$35,000 this year.

Backenstose had already had two careers before becoming a furniture maker. He had worked as an environmental toxicologist for Alcoa in Pittsburgh until 1977, when he decided to quit the corporate life and open a sawmill on his eastern Pennsylvania farm. Starting with \$30,000 from selling his house in Pittsburgh, Backenstose added another \$30,000 for the mill that he borrowed from

the bank that held the mortgage on his farm. By the time Backenstose and a friend decided to diversify from lumber into furniture in 1983, he had built up credibility at his local bank through the success of the sawmill. Even then, the bank would not okay a commercial loan for a start-up, but agreed to lend Backenstose and his partner \$15,000 based on their personal guarantees.

Besides your track record, the amount of money you want to borrow will help determine whether you get a personal or commercial loan. A commercial loan has two main advantages: Interest is fully deductible, and interest rates can be much lower than on personal loans. But most banks, except in very small towns, don't like to lend less than

SNAPSHOT

DAN BACKENSTOSE

BUSINESS: Spring House Classics—Shaker and Pennsylvania Dutch furniture design

START-UP DATE: 1983

MONEY BORROWED: \$30,000 home-equity loan; \$15,000 personal loan

GROSS INCOME: \$35,000



Dan Backenstose's reproductions of historical country designs complement the decor of his 18th-century German farmhouse.



PHOTOGRAPH BY BRENDON POH

SNAPSHOT

HOLLY SAFFORD

BUSINESS: The Catered Affair—catering business

START-UP DATE: 1979

MONEY BORROWED: \$500, \$1,000, \$7,000 personal loans

GROSS INCOME: \$1.5 million

\$50,000 or even \$100,000. "Banks spend a lot of time investigating a borrower's credit background, especially a business borrower," explains Joan Thomas, a vice president in the Small Business Lending Department of Chemical Bank in New York. "It's not cost-effective for us to lend small amounts of money." One exception: You can sometimes obtain a small commercial loan to finance the purchase of equipment.

Unlike commercial loans, personal loans are only partially deductible. But sometimes a personal loan has other advantages. Julie Voorhees, whose home-based company, Spare Change, in Murphys, California, sells disposable diaper kits, last year approached seven banks in a quest to borrow \$15,000. All turned her down. "They said they didn't want to bother with such a small amount," recalls Voorhees. But one bank offered her a personal loan at a lower interest rate than the commercial loan if she and her husband would put up some stock as collateral. The loan had the further advantage of allowing the Voorhees to pay only the interest until sales, now around \$12,000 a year, increase.

A personal loan may not even require any collateral. Holly Safford, who runs The Catered Affair in North Scituate,

Massachusetts, 20 miles southeast of Boston, obtained an unsecured personal loan in 1983 when she needed to move the business out of her home to a garage she was converting into a commercial kitchen. Safford, who has catered parties for Governor Michael Dukakis, started out in 1979 with no experience, no job, no college degree, three kids under age 12, and a freshly minted divorce. Based on the success of some tennis luncheons Safford had prepared, her friends persuaded her that her destiny lay in catering. After two years in business she got a \$500 personal loan, using her savings account as collateral. She followed that with a loan for \$1,000. Finally, with her dining and living rooms crammed with racks of glassware, crates of china, and rows of freezers, Safford borrowed \$7,000 backed only by her personal guarantee as a long-time resident of the community. The Catered Affair now has a

full-time staff of 30, another 30 part-time employees, and revenues of over \$1.5 million.

CHOOSING AND SCHMOOZING A BANK

Targeting the proper bank will make borrowing easier. To find a lender that looks kindly on small businesses, ask other entrepreneurs for the names of banks with which they have worked. The Small Business Answer Desk ([800] 368-5855) can also provide referrals. You can supplement this information by calling the commercial loan departments of local banks (check your telephone yellow pages for a listing) to find out their average loan size.

It often helps to begin a relationship with a bank even before you need to borrow money. Once you have identified a bank that makes loans to small businesses, start by moving your business and personal accounts to that bank. After that, talk with a bank officer about your background and your plans. From time to time, drop in or call the officer with reports on your progress. "When the time comes to borrow, you'll probably find the path a little smoother," says Joan Rosner, chairman of Bauer & Rosner, a New York public relations firm.

Rosner started her business at home in

Ronstadt's Financials to the Rescue

Why Michael Sellard Ditched His Spreadsheet and Database to Prepare a Half-Million-Dollar Loan Proposal

I used to think that pumping too much money into my business would diminish the creative edge that comes from struggling along. But there is a fine line between a hungry business and one that's starving to death," says Michael Sellard, president and owner of Ortek Laboratories Inc. in Portland, Oregon.

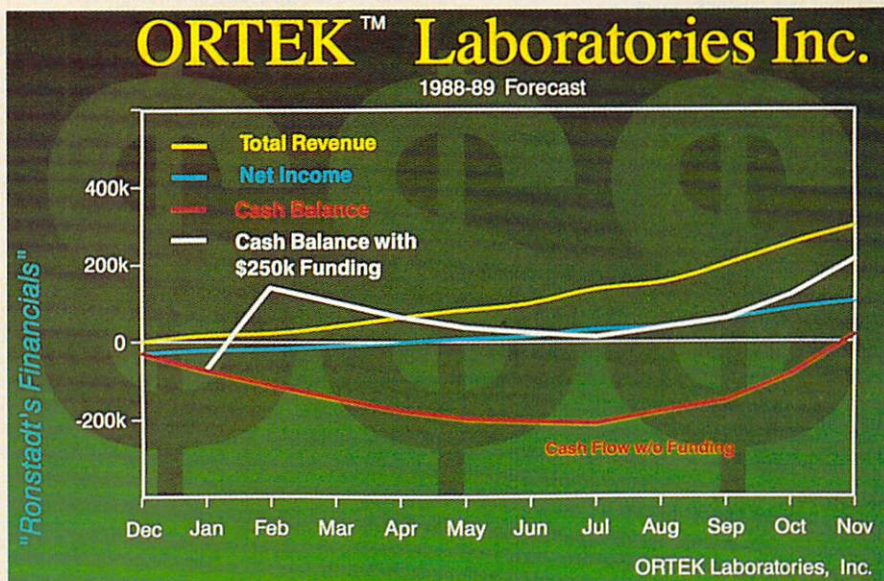
For the last four years, he and his eight employees have been doing research and development for a new computer that simplifies data collection and analysis procedures for the market research industry. Until recently, his business had survived on three small bank loans of \$60,000 or less.

Sellard was able to impress banks with financial statements and forecasts that he prepared using a standard spreadsheet and database program, but he found the number crunching cumbersome. "When you design your own spreadsheet, you have to be extremely careful that mistakes don't sneak in," says Sellard. "And every time you make a change in a calculation, you increase the risk of introducing errors that can go unnoticed. That can throw off your whole projection."

ENTER RONSTADT'S FINANCIALS

When Ortek was ready to start marketing its new computer, Sellard realized that he needed a half-million dollars and an impressive presentation to persuade lenders to loan him the money. He didn't have the time or the confidence in his accounting abilities to generate a detailed spreadsheet for the expertly designed loan proposal he had in mind. "I knew that my financial planning had to step up a level, but creating a massive spreadsheet intimidated me. It's like driving a car at high speed. The faster you go, the more frightful it becomes, and the more critical your driving expertise." *Ronstadt's Financials* (Lord Publishing, Inc.; 512K IBM PC; \$199 through December, \$499 thereafter) came at the perfect time, and Sellard learned to maneuver it with ease.

Ronstadt's Financials is designed to let non-financial and non-computer experts apply the basic techniques of entrepreneurial finance. There are eight sets of preformatted financial statements covering such businesses as real estate, professional services, manufacturing, and retail, as well as personal finance. The labels and formulas are set up to calculate revenue forecasts, income statements, balance sheets, cash flow statements, projected break-evens, and budgets for the industry you choose. You need only fill in



This line graph, prepared using Ronstadt's Financials, shows the cash flow of Ortek with and without funding. The red line represents failure, whereas the white line illustrates a healthy cash/ performance ratio when \$250,000 is added in the third month. The numbers in this example have been changed to protect Ortek.

the numbers relevant to your financial situation. All of these statements are linked so that changes made to one statement are automatically reflected on the others.

Since Sellard's business manufactures and markets computer hardware and software, he used the set of predefined statements for manufacturing. Before Sellard began filling in the numbers, however, he spent some time reading the 220-page book that comes with *Ronstadt's Financials*, learning the program, and reviewing his business plan. The book, *Entrepreneurial Finance: Taking Control of Your Financial Decision Making*, is a well written and clearly organized guide. It details the importance of financial projections in making decisions for your business. As you read, you are prompted to think about the type of business you are in, the amount of money it requires, when it needs this money, and where to find it. *Entrepreneurial Finance* also helps you understand the components of a business plan and how the financial statements are related to one another.

JUST FILL IN THE BLANKS

With the essentials of financial planning in mind, Sellard moved to the program to work with actual numbers. He started with the assumption that his company's new product was way beyond the idea stages and ready for marketing. He knew that Ortek could generate quick sales, but with a negative cash

flow. His goal was to determine how much money was needed—and when—in order to avoid under- or overcapitalization. All he had to do was enter the numbers in the preformatted statements.

With the numbers in place, Sellard could easily observe multiple financial situations at the same time. Without switching between files or pasting together printed output from different spreadsheets, he could compare likely, worst, and best case projections and see their financial ramifications in either graphic or printed output.

Sellard compared the current cash flow with the cash flow with a hypothetical boost of \$250,000 and saw that without the money his business wouldn't survive long. "The program showed me where my business was and where it was headed. I knew Ortek needed a large sum of money, and I had a clear enough picture of the situation to explain it to a banker," says Sellard.

Sellard included the output from *Ronstadt's Financials* with the written part of his loan proposal prepared with Ashton-Tate's integrated package *Framework III*. He is applying for a \$250,000 loan from a bank, and once it's approved, will ask for another \$250,000 from a venture capitalist. The success of his business depends on this money, and Sellard is convinced that his loan presentation will persuade lenders that Ortek is a sound investment.

—KAREN KANE

1982, then moved to the basement of her husband's advertising agency in 1984. "I told the bank where I wanted to be in two years and asked for help in setting benchmarks," says Rosner. Whenever she achieved one of her goals, Rosner made it a point to let her banker in on the good news. When her company outgrew the basement in 1985, Rosner was able to take out two \$30,000 loans from the bank that had watched her business grow.

After you decide which bank to approach, you should do your homework before making an appointment to apply for a loan. Put together a record of your business, preferably going back at least three years. Include tax returns or a financial statement prepared by a certified public accountant. A copy of your own résumé is helpful, especially if it documents your qualifications to run your present business. The bank will give you a detailed questionnaire on which to list your personal assets and liabilities, but it will make a good impression if you come prepared with a statement of personal net worth to hand the banker at your first meeting.

(See "Eight Rules for Borrowing From Your Banker," right.)

PERSISTENCE PAYS

Despite the many handicaps facing a home-based service business, you have a good chance of finding the money you need if you're persistent. Joanne Kobar runs a referral service for temporary household help from her home in Old Lyme, Connecticut. She started the company, T.G.I.F. ("Thank Goodness I've Found"), in 1982 when she was trying to find a job after a decade spent raising five children and doing volunteer work. Looking through the want ads, Kobar noticed lots of help-wanted ads for in-home help and lots of situation-wanted ads for the same type of jobs. She thought of bringing the two groups together.

After four years in the business, Kobar wanted to begin franchising. She needed \$11,000 for legal fees and registration expenses. Two banks turned her down: T.G.I.F. had still not turned a profit. But a loan officer at a third bank understood the need for Kobar's service because an elderly relative of his had experienced problems finding help. Kobar got a commercial loan, which enabled her to earn a spot last year on *Venture* magazine's list of the 50 fastest growing new franchises. With 17 offices in the United States, T.G.I.F. is now solidly in the black.

Looking back, Kobar thinks she may have made things harder than necessary for herself by asking for what she calls "a piddly \$11,000." "If you act small, you'll be treated small," she says. "If you have huge goals, the bank may decide you will do big things." The bank is neither a doting relative nor Santa Claus: It wants a growing business relationship, not gratitude. Charlotte Taylor, president of Venture Concepts, a small-business consulting firm in Washington, D.C.,

Eight Rules for Borrowing from Your Banker

- 1. Select your bank and loan officer carefully.** Make sure that the bank and the loan officer you choose normally handle accounts your size. Also ask them about their attitude toward small businesses. Because the loan officer will be your company's representative within the bank, you should establish a friendly relationship with him or her. If you don't like your officer, ask for a different one.
- 2. Call and make an appointment.** Treat your banker like a professional. Don't "drop in."
- 3. Know what to bring.** Be certain you know what the bank wants you to bring to the meeting or what it will need to make a decision. Have loan forms mailed to you ahead of time.
- 4. Be prepared.** Spend four to eight hours practicing your presentation.
- 5. Know your financial projections.** Don't depend on your accountant unless he or she will come to the bank with you. Even then, be certain you understand the key numbers and what they mean.
- 6. Be ready to guarantee your business loan personally.** Unless you've been in business for several years, don't expect the bank to lend you money without evidence that you are ready to put some of your personal assets on the line. Be certain you think about this commitment beforehand. Just how far can you go without jeopardizing your own well-being and that of your family?
- 7. Don't hide things.** Be trustful and candid, even if it hurts. Chances are that a good banker will discover what you're holding back anyway. You need to provide all the pertinent information to fully utilize your banker's expertise.
- 8. Become a customer of the bank's other services.** A valued customer will often obtain better service and consideration.

SOURCE: *Entrepreneurial Finance*, by Robert Ronstadt, Lord Publishing Inc., 1988, Natick, MA. \$14.95.

warns: "Lots of small-business owners make the mistake of approaching a bank as if they were asking for an allowance. They go in asking, not selling. You have to show bankers that you will make money for them." Kobar praises her Samsung computer and Centronics PagePrinter 8 laser printer for helping her improve the professional image of her business. (See "How Your Computer Can Help You Put Together a Winning Proposal," page 54.)

Your relationship with the bank shouldn't become a mere matter of keeping up with your payments once you receive a loan. "Put together a sales forecasting system, then give the bank constant feedback," advises Christopher Priebe, president of Heurikon Corporation in Madison, Wisconsin. Heurikon, which makes microcomputers, started in Priebe's basement in 1972 and has grown to nearly a \$20 million company. "At least once a quarter, maybe even once a month, let the bank know how accurate your forecast was," continues Priebe, who borrowed \$20,000 in 1974 to move out of the basement. "This is an indefinite world, so it's

important to let people know you're getting better and better at guessing."

BE PREPARED FOR THE WHITE-GLOVE TEST

Whether your business is home-based or not, you can expect the bank to perform a detailed investigation of your finances before making any decision about a loan. "People think they are being singled out, but such scrutiny is part of our business," says Walter Kaplan, a loan officer at Chemical Bank. The investigation will have two parts: business and personal. On the business side, the bank checks to see if anyone is suing your company or if you have ever been in trouble with the IRS for such infractions as not paying employees' Social Security Tax. The bank will call your suppliers to learn if you pay your bills on time. It will also ask you and any other principals in your business to fill out a detailed personal financial statement and will run a personal credit check. "Many small-business owners balk at this," says Kaplan. "They don't always understand that they are the business."

Even if you pass these tests, the bank may still not be ready to come up with the cash. Owners of a young business, or one in which management does not have much experience, will have to provide what banks call a "secondary source of repayment." That source may be personal assets on which the bank can take a lien. Usually, however, lenders prefer to have a co-signer, who must submit a personal financial statement and undergo a credit check. Banks rarely take all of the assets to which they are legally entitled if a business cannot repay a loan. "If a guy has gone bust and you go into court to try to take his wife's jewelry, the judge will throw you out on your butt," says one banker.

You may be able to negotiate a lower interest rate on your loan if you put up a certificate of deposit, a savings account, stocks, or bonds as collateral. Another way to improve your credit standing is to put the bank ahead of other lenders for loan repayments. If a friend has loaned you money, he can sign an agreement to wait for repayment until the bank receives its money—an arrangement known as subordinating debt. Your friend's loan will then count as an asset instead of a liability, putting your business on a stronger financial footing.

PRESENT A PROFESSIONAL IMAGE

A frequent complaint of bankers is that owners of small businesses—and home-based businesses in particular—are unprepared and unprofessional. "No bank is going to fund a hobby," warns Charlotte Taylor. With a well-researched business plan in hand, you should be able to reel off statistics about the size of the market of your product, the average profit margins in your industry, and why you expect to do as well as or better than your competitors.

A business plan is the most important document of all. You can get free help drawing

up a plan from your local SBA office or from Small Business Development Centers sponsored by the SBA and based at universities. Business plans should include information about your product, the size and seasonality of your market, your competitors, your plans to expand, and the names of your suppliers and your credit arrangements with them. Keep the information precise and concise. "There's often an inverse relationship between credibility and weight or glitz," warns banker Joan Thomas.

A well-thought-out marketing plan is another essential part of persuading bankers to see you as a future moneymaker. "People think they just bring out a product and start counting their profits," says David Carr, a senior vice president and commercial loan officer at the First National Bank in Wellington, Kansas. "Instead of finding out what customers need, a lot of small businesses just deliver what they think the market wants," says Carr. He strongly recommends that loan applicants include a market-research summary in their business plan.

The SBA can suggest ways to do such research economically. One method is to do a phone survey. Another is to follow the example of Julie Voorhees, owner of Spare Change. On the advice of her brother-in-law, a business major in college, Voorhees and her husband bought a pair of clipboards, dressed up in suits, and started interviewing people in shopping malls about whether they would buy a diaper change kit and how much they would pay. Although Voorhees failed to obtain a commercial loan, her research helped her put together \$20,000 in seed money from friends and relatives.

Be sure you also come equipped with a request for a definite amount of money for a specific purpose. "Don't ask bankers how much they can lend you," advises Joan Thomas. "Tell us exactly what you need, and we'll let you know if we think it's realistic." Borrowing to buy a piece of equipment is usually a lot easier than financing a service business. "We look a little askance at service businesses," says Dwight Johnson from the SBA. "A tangible product is easier to price and easier to distribute, and you generally have some equipment or inventory to use as collateral."

Every now and then building a better mousetrap—or concocting a better candy—cancels all the rules and conventions and brings bankers flocking to your door. That's what happened to Alice Medrich, founder of Cocolat in Berkeley, California. In 1973, just back from a year in Paris, Medrich began making chocolate truffles using a family recipe her French landlady had given her. She was soon preparing hundreds of candies each night in her home kitchen for sale at a local charcuterie. Three years later, with \$9,000 in savings and a \$5,000 loan from her mother-in-law, Medrich opened a bake shop where a local banker took note of the crowds and the quality of Medrich's confections. Without her even asking, he offered Medrich a

Alice Medrich tempts customers at Cocolat with her truffles, eclairs, and cakes of all kinds.



\$275,000 loan to move into larger quarters. Cocolat now employs 80 people, distributes its wares nationally, and has over \$3 million in annual revenues.

IF AT FIRST YOU DON'T SUCCEED, TRY THE SBA

For many people, reality is more likely to take the shape of a rejected loan application than pursuit by bankers waving money. Rejection doesn't mean you may not eventually find the funds. In fact, it may be a necessary first step. The SBA can either guarantee up to 90 percent of a loan from a bank or lend money directly, but borrowers must first supply rejection letters from three banks. The SBA also requires borrowers to put up at least 30 percent of the capital needed. Preferred Lender banks can make SBA-guaranteed loans to businesses meeting specific criteria without first getting SBA approval, which can take as long as six months.

SBA loans are not necessarily small change. In 1974, when Arden Kiefer of Kanawha, Iowa, wanted to expand the welding shop in his barn to manufacture livestock trailers, he obtained an SBA loan for \$25,000. Six months later he borrowed another \$35,000 from the SBA. "I overwhelmed them with enthusiasm," recalls Kiefer, president of Kiefer Built, now a \$10-million company. "They must have figured that anyone with that much conviction has got to succeed."

Small Business Investment Corporations (SBICs) are an additional source of capital. SBICs (pronounced "sibik") are private companies, licensed and regulated by the SBA, that help finance new or small-business enterprises with matching funds of \$4 for every \$1 raised by the entrepreneur. Each SBIC sets its own policies, but most advance money in return for the right to buy stock in your company at a later date. There are currently 300 SBICs and 128 MESBICs,

SNAPSHOT

ALICE MEDRICH

BUSINESS: Cocolat—pastry shop

START-UP DATE: 1976

MONEY BORROWED: \$15,000 from relatives, \$275,000 commercial bank loan

GROSS INCOME: \$3 million

which finance minority-run businesses. For the latest directory, published by the National Association of SBICs, send \$4 to: NASBIC, 1156 15th Street N.W., Washington, D.C. 20005.

Entrepreneurs in science or technology have some advantages over owners of other small businesses. For one, they are eligible for grants up to \$500,000 from the Small Business Innovation Research program (SBIR). The grants are administered by 11 different federal agencies. You can obtain more information from the Office of Innovation, Research & Technology, SBA, 1441 L Street N.W., Washington, D.C. 20416.

OTHER SOURCES OF FUNDING

There are several other ways to finance your business than by borrowing from large lending institutions.

Credit Unions. Entrepreneurs who belong to a credit union may be able to borrow money without the rejections or rigmarole associated with SBA loans. "If you don't need to accept Visa or MasterCard payments, start with a credit union instead of a bank," says Katie Reikofski, a counselor with the Small Business Development Corporation in Spokane, Washington. "Credit unions typically have lower costs than banks, so they can afford to make smaller or somewhat riskier loans."

Small-Business Development Programs. State, city, and community development programs are another promising source of funds for home-based businesses. To find such programs, check with your state depart-

ment of commerce or county regional development agency, as well as with your local chamber of commerce and SBA office. Michigan and Pennsylvania, in particular, have launched ambitious efforts to create seed capital. On the municipal level, many cities, including Chicago, Los Angeles, Buffalo, and Philadelphia, have established revolving loan funds (RLFs). Interest rates on RLF loans are often far lower than those charged by banks. And unlike banks, RLFs do not turn up their noses at requests for less than \$50,000.

White Rose Designs, which manufactures Victorian-style nightwear and lingerie, owes its success partly to the community development loan program in Arcata, California. Katherine Harestad started the company in 1980 in a corner of her living room. The business grew to fill an entire room, but she soon needed even more space. In 1985, after spending almost two months writing a business plan, Harestad applied to the Arcata Economic Development Corporation for an \$8,000 loan to move into a factory. She received the loan, paying less than the prevailing interest rate charged by banks. Harestad has since doubled her factory space and expects 1988 revenues to reach a total of \$200,000.

Venture Capital. Loans are not the only way to finance a business. You can also give investors a share of your company in return for a cash contribution. Venture capitalists make such contributions to small or start-up firms, but professional venture capitalists usually will not even read business proposals from companies with less than \$1 million in annual revenues. If you do get a professional investor interested in your company, it may be at an exorbitant price. When Sophia Collier of Soho Soda approached a venture capitalist after three years in business, he told her he would be happy to advance the \$60,000 she needed—provided she sign over 90 percent of her company. Collier got an SBA loan instead.

Fortunately for small business owners, venture capital is not the private preserve of professional financiers. There are many groups of amateur venture capitalists, including doctors, other businesspeople, or even bankers investing for their own account, who are willing to put up modest sums of money in return for a small share of the business. Your lawyer, accountant, or banker can usually put you in touch with such groups. Your local chamber of commerce may also be a good source of leads, along with Small Business Development Centers or small business workshops at colleges and universities. Referrals are usually local, but the University of New Hampshire runs a computerized network that matches investors and entrepreneurs throughout the United States. The service, known as Venture Capital Network, charges \$100 for six months worth of referrals (P.O. Box 882, Durham, NH 03824).

In your search for funds, don't be tempted to approach a large company that makes

How Your Computer Can Help You Put Together A Winning Proposal

Benjamin Franklin had a good point when he said, "He that goes a-borrowing goes a-sorrowing." Asking for money is no fun at all. The cool, authoritative look in a lender's eyes can be disconcerting, interest rates on loans can rival the percent increase in your blood pressure when you walk into a bank, and venture capitalists can demand so much control that you feel like a pawn in your own chess game. What Ben didn't know, however, was that borrowing can be easier with the help of a personal computer.

A computer can help you gain control of your business. And the more you understand your business, the better idea you'll have of how much money you need to succeed. With a clearer picture of your business needs, you can prepare a professional-looking and logically organized proposal for funds and present it with confidence.

Automated Accounts

Automating your company's accounting system helps you prepare timely historical financial statements for inclusion with your loan proposal. This not only helps the banker analyze the company's current position, but also conveys the impression that you are serious about monitoring the success of your business on an ongoing basis. If you seem as though you don't care to measure your company's ongoing progress, you can leave a banker wondering about your management skills and ability to handle debt. Furthermore, a lender may occasionally request periodic financial statements from you as a means of monitoring the company's profitability during the term of the loan. Automation will ease the pain of meeting that kind of requirement.

Some business owners may opt to hire an accountant to prepare their budgets and projections, but with a spreadsheet and database program or an integrated financial management package, you can do your own balance sheets, income statements, and what-if scenarios. You may still wish to consult an accountant for professional advice, but the more you understand the numbers in your loan proposal, the better you can defend your request. Personal-finance packages can help you gain the same control of your personal finances—an important consideration since most lenders insist that a home-based business be backed by its owner.

Say It in Writing

In preparing a loan proposal, make heavy use of a word processor to bring your entire document together. Your proposal should go through several revisions before it is ready for a lender's scrutiny. With a word processor, you can make quick and easy edits. A built-in spelling checker can highlight spelling errors, and a thesaurus can help you come up with the most convincing prose.

If the written part of your loan proposal is saved in a word-processing document, it can be used again in the future whenever new credit needs arise. You can follow the model of your previous loan summary, business fact sheet, and detailed description of your financial needs, substituting your new data. This will save many hours of preparation time and

expedite the entire lending process.

When you went into business for yourself, you probably thought your days of writing résumés were over. But if you're trying to borrow money for your business, your résumé may be an important part of your loan proposal. Even if a lender doesn't require one, you should provide a résumé to show that you stand behind your business. It helps to have your résumé on a disk so that you can easily update it for inclusion in a loan proposal. While a word processing program is suitable for creating your résumé, a résumé-writing program may make producing a more professional-looking page easier.

Illustrate It with Graphics

Use graphics wherever possible to highlight particular trends, market positions, or expense relationships, for example. While it's important to have the numbers available, a pie chart or line graph may illustrate your point more dramatically than the raw numbers. Graphs also add to the overall look of your proposal.

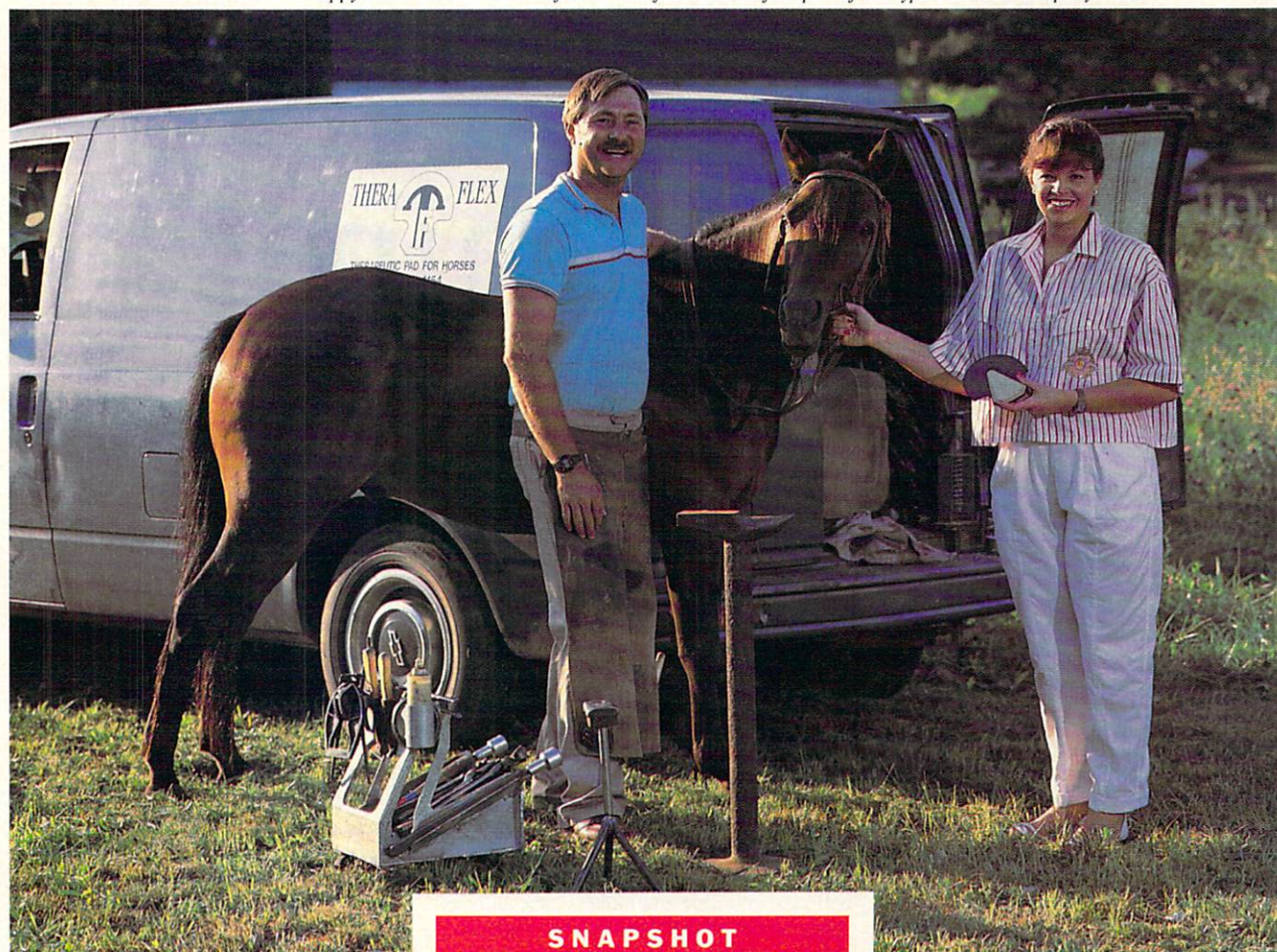
Many spreadsheet, database, and financial-management programs have simple graphing capabilities built in. If you want something fancier, there is an array of graphics programs designed to work with your spreadsheet data to produce business graphics. It's important that you choose a graphics package that will support the type of output you want.

The Output

The best type of output for business documents is black-and-white laser printout. Laser-printed documents look crisp and clean, making them easier for a loan officer to read. You may decide to include a splash of color graphics in your proposal, but the high resolution of a laser printer can offset the lack of color if you don't want or don't have access to color. Any color distinctions shown on your computer screen are translated into cross-hatchings or shades of gray on the laser-printed page. The result is professional and will make a good first impression.

If you don't have a laser printer, try your local copy shop which will usually print your documents for \$1 per page. A graphics service bureau will also take your computer-generated graphic and produce laser hard copy or thermal-transfer hard copy for less than \$10. Just send them your disk, and you'll have high-quality results in just a few days. (See "Presentation Graphics" in the April issue for more information on service bureaus.)

Benjamin Franklin also said, "Remember that time is money." Here again, Ben might have turned to a personal computer to help emphasize the point. With a computer, you can make more efficient use of your time as a businessperson by doing automatic recalculations with a spreadsheet and simple text edits with a word processor. You can quickly and easily produce illustrative graphs and charts for your business plan or loan proposal and print your entire document with laser speed and quality. The sharper your proposal is when you present it to a financial lender, the less time will be wasted on revisions, and the sooner your loan will be approved. —KAREN KANE



SNAPSHOT

CHRIS AND BRUCE MCCUAN

BUSINESS: Thera-Flex—therapeutic foot supports for horses

START-UP DATE: 1986

MONEY BORROWED: \$350,000 trade credit, \$350,000 SBIR (pending)

GROSS INCOME: \$100,000

products related to what you hope to sell. "That's like getting into a fight with Mike Tyson," says Walter Kaplan. "They can make the smallest amendment, and your idea will be theirs. The only way to get money from a big company is to sell out for lots of money and start something new."

Barter. Two of the best sources of money don't charge interest, ask for a slice of your pie, or even require you to fill out an application. One is barter, and the second is trade credit, that is, persuading a supplier to perform a service or let you have equipment to be paid for at some future and often unspecified time. In barter, you trade something you do or make for someone else's goods or services. A&M Maintenance, a housekeeping service in Spokane, used barter to pay for radio and TV advertising. Last year A&M, which Anna and Mark Berestoff run from their home, traded one hour of cleaning a night for \$13,000 worth of air time. In 1985, after quitting his job as maintenance manager for a large Nordstrom's department store, Mark Berestoff started the business with a \$600 nest egg. It took three months to land his first cleaning contract, but since then the business has grown quickly. In 1987, A&M, which concentrates on the lucrative but fussy specialty of cleaning restaurants, had revenues of \$93,000.

Trade Credit. Unlike barter, arranging a trade credit requires both persuasion and usually a business plan since you are offering your dream in return for a product or service with a known market value. A little over two years ago, Chris and Bruce McCuan of Lawrenceburg, Kentucky—she's a nurse and he's a farrier—convinced a tool-and-die maker to help develop the prototype for a therapeutic foot support for horses.

Horses often suffer from a foot ailment called founder, which is hard to cure and can even prove fatal. Working from home on their 12-acre farm, the McCuans designed a pad that fits inside a horse's hoof. They brought their design to a tool-and-die maker who both knew and loved horses. After first turning the couple away, the tool-and-die maker ended up advancing more than \$350,000 in research and development expenses. "It's lucky we didn't know very much when we started," says Chris

McCuan. "If we'd had any idea of what this would cost, we would have been too scared to get involved."

Since then the McCuans have purchased an IBM PS/2 Model 50 and have begun to computerize almost every aspect of their business. They use an animation program to demonstrate how their product works, produce brochures and advertising banners for trade shows, and maintain tighter control of their business finances. "I think that automating your business shows that you're serious. We are applying for a \$350,000 Small Business Innovation Research grant (SBIR) to fund research and development on another new product. We want to be taken seriously," says Chris. But with 1988 revenues of around \$100,000 and sales in 19 foreign countries, the McCuans' company, Thera-Flex, is already galloping toward profitability.

The bottom line in borrowing money from banks, government programs, venture capitalists, or any other source is that you must convince these lenders that investing in your business will benefit them. If you know your business well, stand behind its potential to turn profits, and can articulate your needs both in a formal loan proposal and in person, you are sure to find a lender willing to bank on your business. ■

Fax Machines

*Why These Machines Have Become Home-Office Must-Haves.
Plus 5 Reviews and a Shopping Guide to the
Latest and Greatest*

BY STEVE USDIN

If you don't already own a facsimile machine, take a closer look. Fax machines are fast becoming standard communications equipment in businesses and home offices throughout the world.

According to CAP International, a market research firm, the facsimile machine market is growing by 15 to 20 percent per year. Manufacturers and analysts predict that the number of machines in use, now about one million, will grow to more than two million over the next five years.

THE WONDERS OF FAX

There's good reason for this steady growth. Fax machines are an easy and immediate way to send and receive written information. You can communicate by fax to and from anywhere in the world—even a plane or train. Why wait days for post-office delivery or spend \$10 to \$20 for overnight service when, for the cost of a phone call, you can instantly send and receive documents by facsimile over your phone lines?

For many businesspeople, the speed, convenience, and ease of use of fax machines are well worth the cost of the machine. And facsimile machines are now more affordable than ever. Prices have dropped by more than 75 percent since 1980, and good machines are available for less than \$1,000. At the same time, facsimile transmission speeds, resolution, and reliability have improved dramatically.

Choosing a facsimile machine from the

wide selection on the market—from portable models small enough to fit in a briefcase to commercial models capable of handling hundreds of messages per hour—can be bewildering. Many of the features described below will save you time and money, especially as your volume of fax transmissions increases. But the simplicity of operation is compromised as bells and whistles are added.

UP TO SPEED

The speed of fax transmission depends on such conditions as telephone line quality, type of document, and the capabilities of the sending and receiving machines. Transmitting at higher speeds makes it possible to send and receive more documents in less time and for less money. When the quality of the phone line is good (with little or no static), the fax machine will operate at top speed. When there is interference on the telephone lines, most machines automatically adjust transmission speed downward until they find the fastest speed the line can accommodate.

Another factor affecting speed is the type of document. Fax machines read only the non-white sections of a document. It takes longer to read and transmit a highly detailed document with artwork or fine print than it does to handle one with large type and white space.

Finally, the speed of facsimile transmission depends not only on how fast the sending machine scans documents, but also on the speed at which the receiving machine can print materials. Optimal speeds are usually achieved when communicating among machines produced by the same manufacturer.

CONVENIENCES

Most fax machines are equipped with such features as autodialers, copiers, and terminal identification. Other less common conveniences include automatic document cutters, voice request, and activity reports.

Autodialers, which are standard on most barebones units, allow speed dialing of often-used numbers and will usually redial busy numbers automatically.

Terminal identification puts a header on each page of outgoing messages. The header shows the date, time of transmission, page number, and identification such as a company name or phone number.

A fax machine with an **activity reporting system** will store and print records of messages transmitted and received. The record will show the time, date, and identification of the transmitting or receiving fax machine for each message and will state whether or not the transmission and/or reception was successful.

Voice request allows you to talk to the party on the other end after transmission is completed. You can use this feature to discuss problems with the transmission or pass on special instructions for your fax message.

If you expect to receive many faxes, look into an **automatic document cutter**. It cuts each page of an incoming fax message to the size of the sender's original document. Without an automatic document cutter, all your fax messages must be cut apart by hand.

Most fax machines can double as **copiers**. But because copies made on a fax machine are not as sharp, and the paper quality is not as good as output from most photocopiers, consider it only for back-up.

STEVE USDIN is a freelance writer living in Washington D.C.



Clockwise from top: Murata M1600, Hitachi HiFAX 17, Canon FaxPhone 20, Toshiba 3300, and Sharp UX-160.

PAPER CONSIDERATIONS

If your average document is longer than one or two pages, you should invest in an **automatic document feeder**, which can range in capacity from 5 to 30 pages. These feeders allow you to stack a multipage document on your machine and walk away while it transmits. Without one, you will have to stand by the machine, inserting each page by hand.

Most fax machines can transmit documents ranging from 5 to 11 inches in width and 3 to 14 inches in length. To send documents larger than 11.5 by 14 inches that will be received on standard facsimile paper, you'll need **automatic image reduction**.

OUT OF THE OFFICE

Facsimile machines don't require active

participation from the user. Many features are available that allow the machine to send and receive documents while you are away from the office or busy doing other things.

At least two features, **automatic reception** and **automatic disconnect**, are essential. When someone tries to send you a fax, a machine with automatic reception will automatically answer the phone, connect with the sender, and receive the message. Once transmission is complete, automatic disconnect hangs up the phone and readies the unit for the next message.

Delayed transmission allows you to program your fax machine to send cross-country or international fax messages in the evening when long-distance rates are lower. This feature also allows your machine to send a mes-

sage to a distant time zone during normal office hours there.

Store and forward or **broadcasting** allows large-volume users to send messages automatically to a number of locations. Program the machine with a list of recipients' fax numbers and place the document in the document feeder. At a preset time, the machine will call each number and send documents.

Use a similar feature called **polling** to receive documents automatically. With polling, you program your unit with a list of phone numbers. At a preset time, your machine will call these other units and query them for messages. If there is a message, it will automatically be transmitted to you as long as it is in the sending machine's automatic document feeder.

You can communicate by fax to and from anywhere in the world—even a plane or train.

THE QUALITY OF OUTPUT

Most fax machines use thermal paper, which has a shiny surface and a tendency to curl. Machines that will print received messages on plain paper start at around \$3,000.

Because fax machines record an image by breaking it up into a pattern of tiny dots, the resolution, or sharpness of the image, depends on the number of dots per inch (dpi). All models share a minimum resolution of 200-by-96 dpi. Most also have a "fine" mode (about 200-by-192) that creates a much clearer, more detailed image, but takes as much as twice as long to transmit. Some even offer "super-fine" mode, which is about 200-by-392 dpi.

MAINTENANCE AND RELIABILITY

Maintaining a fax machine is easy: About

Is There a Fax Standard?

An international committee, International Consultative Committee for Telephones and Telegraphy (CCITT), has set a standard that divides facsimile machines into four groups (known unimagatively as Group I, Group II, Group III, and Group IV). This system is used worldwide by all facsimile manufacturers.

Group III machines are the current standard. These units transmit one-page documents in less than one minute (often in less than 20 seconds) and at a relatively high resolution (a minimum of 200 by 96 dpi). When shopping, don't settle for less than Group III-compatible.

the only thing that ever needs to be changed is the paper. To avoid expensive service calls, learn what the fax machine's error messages mean and how to correct them. The most common errors you will encounter are

paper out, paper jam, and line error. (Line error occurs when there is too much static on the phone line to transmit the facsimile accurately.) Many machines have liquid crystal displays (LCDs) that show these messages and the status of facsimiles being transmitted or received.

THE NEXT STEP

Now that you have the basic facts on fax, you are ready to browse through our reviews of five of the best-selling machines on the market and an accompanying chart with pertinent information on more than 30 units. If you're still not convinced that a fax machine is worth the investment, talk to people in your line of work who have taken the plunge. Chances are, they'll tell you that they don't know how they ever worked without one.

BUYER'S GUIDE TO FACSIMILE MACHINES

What follows is a guide to 32 facsimile machines that are available nationwide. All have transmission speeds of less than 45 seconds and feature fine mode.

Company/Model	Suggested Retail Price	Automatic Document Feeder (pages)	Sheet Cutter	Roll Length (feet)	LCD Display (Characters x lines)	Super-Fine Mode	Activity Report	Broad-casting	Delay Trans-mission	Poll-ing	Gray Scale	Memory Dialer (Fax/Telephone)	Phone Included	Warranty
Brother Fax 100	\$1,495	N	Manual	100	N	N	N	N	N	N	N	10T	Y	90 days
Canon Faxphone 8	\$1,295	5	Manual	98	N	N	N	N	N	N	N	N	Y	90 days
Faxphone 20	\$1,995	5	Manual	98	20 x 1	N	N	Y	Y	Y	8	26/26	Y	90 days
Faxphone 25	\$2,695	10	Auto	98	20 x 2	N	N	Y	Y	Y	8	40/40	Y	90 days
Cobra PP-110	\$999	N	Manual	59	N	N	N	N	N	N	N	N	N	1 year
PP-114	\$1,599	N	Manual	98	16 x 1	N	Y	N	N	N	8	70T	Y	1 year
Fujitsu dex ten	\$1,695	5	Manual	98	N	N	Y	N	N	Y	16	N	Y	90 days
dex2200	\$1,995	5	Manual	98	20 x 1	N	Y	N	Y	Y	16	76/76	Y	90 days
Hitachi HIFAX 17	\$2,295	25	Auto	328	16 x 1	Y	Y	N	Y	Y	16	10T	Y	dealer determines
Medbar PortaFax III	\$1,995	N	Manual	60	N	N	N	N	N	N	N	N	Y	1 year
Mitsubishi FA-1500	\$1,395	5	Manual	92	16 x 1	N	N	N	N	N	N	N	N	90 days
FA-2100	\$1,995	30	Auto	164	32 x 2	N	N	N	Y	Y	N	32T	Y	90 days
FA-3300	\$2,495	30	Auto	164	32 x 2	N	Y	N	Y	Y	16	80T	Y	90 days
Murata M1200	\$900	N	Manual	98	N	N	Y	N	N	Y	N	N	Y	90 days
M1600	\$1,600	N	Manual	98	32 x 1	N	Y	N	N	Y	N	N	Y	90 days
NEC NEFAX 3EX ¹	\$2,495	5	Auto	148	15 x 1	N	Y	N	Y	Y	16	50/50	Y	6 months
Olympia OlyFax 100	\$1,795	5	Manual	98	16 x 1	N	Y	N	N	N	N	100/12	N	90 days
OlyFax 515	\$2,495	30	Auto	164	24 x 2	Y	Y	N	Y	Y	16	100/20	N	90 days
Panasonic KX-F120 ¹	\$1,695	5	Manual	85	15 x 1	N	Y	N	N	N	16	110/30	Y	1 year
Ricoh FAX07	\$1,750	N	Manual	98	N	N	Y	N	N	N	N	100T	Y	90 days
FAX10	\$2,055	10	Auto	164	N	N	Y	N	N	Y	N	N	N	90 days
FAX20	\$2,545	10	Auto	164	N	N	Y	N	Y	Y	64	280T	Y	90 days
RF800	*	N	Manual	98	N	N	Y	N	Y	N	N	100T	Y	90 days
Sharp UX-50	\$999	N	Manual	49	N	N	N	N	N	N	N	N	Y	90 days
UX-80	\$1,499	N	Manual	98	N	Y	N	N	N	N	8	N	Y	90 days
UX-140	\$1,599	N	Manual	98	N	N	Y	N	N	Y	8	N	Y	90 days
UX-160	\$2,299	10	Manual	98	16 x 2	Y	Y	N	Y	Y	8	162T	Y	90 days
Toshiba 30100	\$1,795	N	Manual	98	40 x 2	N	Y	N	N	N	N	50/50	Y	1 year
3300	\$1,995	5	Manual	98	20 x 1	N	Y	N	Y	Y	N	30/30	Y	1 year
3700	\$2,495	10	Auto	164	16 x 1	N	Y	N	Y	Y	16	30/30	N	1 year
XEROX 7007	\$1,995	10	Manual	98	32 x 1	Y	Y	N	Y	N	N	87/87	Y	90 days
7011	\$2,595	25	Auto	164	40 x 1	N	Y	N	Y	Y	N	30T	Y	90 days

(1) = Answering machine included; N = No; T = Total number that can be used for either telephone or fax; Y = Yes; * = Price not available at press time.

MANUFACTURERS

Brother International Corp. (201) 568-3838; Canon USA Inc. (516) 488-6700; Cobra Consumer Electronics Group/Dynascan Corp. (312) 889-8870; Fujitsu Imaging Systems of America, Inc. (800) 243-7046; Hitachi, Ltd. (213) 537-8383; Medbar Enterprises (800) 621-6203 or (718) 335-0404 in NY; Mitsubishi Electric Sales America, Inc. (714) 220-2500; Murata Business Systems (214) 392-1622; NEC America, Inc. (516) 753-7000; Olympia USA, Inc. (201) 722-7000; Panasonic Company (201) 348-7000; Ricoh Corp. (201) 882-2000; Sharp Electronics Corp. (800) 447-4700; Toshiba America, Inc. (714) 583-3700; Xerox Corp. (800) 832-6979.

Fax Machine Reviews

A Selection of ★★☆☆ and ★☆☆☆☆ Models

What follows are reviews of five mid-range facsimile machines arranged in suggested retail price order. The reviewers and editors of HOME-OFFICE COMPUTING would recommend purchasing any of these units. Each machine is better suited than the others for some applications. Specifications for 32 machines, including these five, are on the accompanying chart.

Murata M1600

RATING: ★★☆☆

SUGGESTED RETAIL PRICE: \$1,600

The M1600 is one of Murata's first offerings in the personal facsimile market. Its small footprint, 11.9-by-8.5-by-3.4 inches, and built-in telephone will be appreciated on a crowded desk. Operation and programming are straightforward.

The auto-receive-time feature is especially convenient for offices that need to make efficient use of a limited number of telephone lines. With this feature, you can program the machine to switch to manual receive in the morning and to automatic answer at the end of the day, thereby saving you the trouble of remembering to make the switch manually. It's also a big plus when you're out of the office.

Lack of an automatic document feeder means standing by and feeding pages one at a time, a tedious procedure for long documents. The M1600 has neither delayed transmission nor a memory dialer, both musts if you regularly send faxes across the country or around the world.

The Murata M1600's low price and array of basic features such as activity reports and polling make the machine especially attractive for a home office that needs a fax for light work.

—STEVE USDIN

Canon FaxPhone 20

RATING: ★★☆☆

SUGGESTED RETAIL PRICE: \$1,995

If we were voting this month for fax machines instead of politicians, the Canon FaxPhone 20 would be the popular middle-of-the-road candidate. It's not the most scintillating unit available, but it's well-rounded, feature-smart, and has high name recognition.

While the compact Group III-compatible machine sports a telephone, a copier, and an LCD display and offers fine mode and polling capabilities, so does its competition. What this machine has that some of the other

contenders lack is a five-page document feeder. And no other fax machine that costs less than \$2,000 offers broadcasting: up to three pages to as many as 16 locations. Even the Sharp UX-160, which costs \$300 more, lacks broadcasting capabilities.

Two useful features that the FaxPhone 20 doesn't have are an automatic document cutter and delayed transmission capabilities. If you want that from Canon, you'll have to go with the Canon FaxPhone 25—which costs \$700 more.

The documentation offers clear and easy-to-read instructions—with one exception. It doesn't explain how to install a roll of paper until the last few pages of the booklet.

Don't overlook the FaxPhone 20 when you're shopping for facsimile machines—especially if you need broadcasting. Once you see what you get for your money, the Canon FaxPhone 20 just might get your vote.

—TIM HAZEN

Hitachi HIFAX 17

RATING: ★★☆☆

SUGGESTED RETAIL PRICE: \$2,295

For the confines of an 18-lb., 13.8-by-14-by-4.5-inch enclosure, Hitachi has designed an efficient and versatile fax machine that can handle a galaxy of applications for small- to medium-size businesses.

The beauty of this machine is its adaptability to your growth. You can start work immediately by doing small, simple tasks. And as you gain confidence and your business grows, you can take advantage of the HIFAX 17's more advanced features. These include a 25-page sheet feeder, an automatic sheet cutter, a 100-number memory dialer, activity reports, delayed transmission, polling, fine and super-fine transmission modes, and a 16-level gray scale. The only feature Hitachi has left out is broadcasting.

One minor caveat: Though the manual is thorough and covers all operations, it has a cluttered look, which made it a little hard for me to follow.

If you need a fax machine with many advanced features, be sure to look at the HIFAX 17.

—JEFF DONAHUE

Toshiba 3300

RATING: ★★☆☆

SUGGESTED RETAIL PRICE: \$1,995

The Toshiba 3300 facsimile machine offers many of the basic features needed by the consumer who transmits faxes frequently.

System set up is extremely easy and completely foolproof because the LCD readout directs you through the set up step-by-step. If you should happen to have a problem, just call the toll-free technical support number provided by Toshiba, and they will answer your questions.

With all of its dialing and transmission features—fine mode, 60-number memory (30 telephone and 30 fax), and delayed transmission—the 3300 is easy to operate. Just place your document into the five-page automatic document feeder, dial the number, and the document is transmitted. If the number is busy, the Toshiba 3300 will try it again twice before giving up.

The Toshiba 3300 also includes a delayed transmission function and a polling feature. It lacks an automatic paper cutter, which is a must if you plan on receiving a lot of paperwork. Another drawback is the 3300's lack of a broadcasting feature. If you send the same facsimile to more than one person, you will have to repeat the transmission manually instead of letting the machine do it automatically.

The Toshiba 3300 provides you with most of the facsimile capabilities that you will need, and all of this will take up just 14.8-by-12.5-by-3.9 inches of space on your desk.

—TERRY KEARNS

Sharp UX-160

RATING: ★★☆☆

SUGGESTED RETAIL PRICE: \$2,299

Much of the Sharp facsimile machine line is built around the same basic engine. Many of the features found on the UX-160 are also available on Sharp's other models, including the super-fine transmission mode, the half-tone mode with eight levels of shading, and activity report. The differences among models lie mainly in the area of added features.

The UX-160 offers delayed transmission and polling. It also has an automatic document feeder that can handle 10 pages.

The manual is helpful and well written. Sharp offers a 90-day warranty with this machine and an optional one-year service contract for an additional \$80.

The Sharp UX-160 is a good middle-level machine that is easy to use and understand. The only drawback is the price. When compared to the Hitachi fax machine, the HIFAX 17 wins in features. But the UX-160 is not a loser. For the money you get a well-built fax machine that Sharp stands behind.

—STEVE USDIN

Upgrading Your Computer

P A R T O N E

MS-DOS

How to Add Spunk and Sparkle—Memory, Speed, a Hard-Disk Drive, or Whatever It Takes—to Pep Up Your Aging IBM PC, XT, or Compatible

BY CHARLES H. GAJEWAY

We've all heard about the latest computers that can sprint 5, 10, even 15 times faster than the machines that presently grace our desks. And we've read about the wonders of OS/2 and the much heralded Microsoft *Excel*, both of which need at least an AT-level environment to run. Suddenly, our old champs seem slow and feeble.

We have a number of choices: We can put our aging machine out to pasture—maybe give it to a spouse or teenage son or daughter, donate it to a school or summer camp, or sell it to a friend—and invest in a younger, faster filly. Or for far less money, we can pamper the workhorse we have, nail on some new horseshoes, and give it a new saddle.

Indeed, there are so many ways to improve the performance of PC and XT compatibles that it's easy to spend as much on expansion as you did on your computer. (See "A Must for the PC" if you own an original PC, as you'll first need to upgrade your BIOS chip.) As a rule of thumb, you should spend no more than half the price of a new computer to enhance your current machine.

BOOST YOUR COMPUTER'S IQ

It is an axiom of computing that you can never have enough memory. Take the 640K nominal maximum for MS-DOS compati-

bles, subtract for DOS, RAM-resident programs like *SideKick*, and your application software, and suddenly your workspace seems miniscule. But if 640K is the maximum that DOS can recognize, how can you get more memory in your computer?

Some time ago, Lotus, Intel, and Microsoft together developed a memory management standard that allows programs to recognize and use much more than 640K. Many memory expansion boards are designed to support this standard (known as EMS or LIM-spec memory); my favorites are the Intel Above Board 286 and AST Rampage. These boards are attractively priced at \$645 and \$1,001 respectively, well made, and are equipped with useful utilities. The Intel Above Board 286 comes with 512K of memory while the AST Rampage has 1MB. Both can be expanded to 2MB. In addition, the AST Rampage is packaged with Quarterdeck's excellent *DesqView 1.2* software that enables you to run multiple programs simultaneously in expanded memory. While the Rampage is just a memory board, the Above Board 286 can also be purchased as a multi-function board with a clock and serial and parallel ports. Either board will work with whatever memory is currently installed in your system.

TURN AN 8088 INTO AN 80286 or 80386

Most XT compatibles now feature "turbo" operation (generally around twice as fast as the original XT). A faster computer is

CHARLES H. GAJEWAY, a contributing editor, wrote "A Beginner's Guide to Shareware Programs" in our August issue.

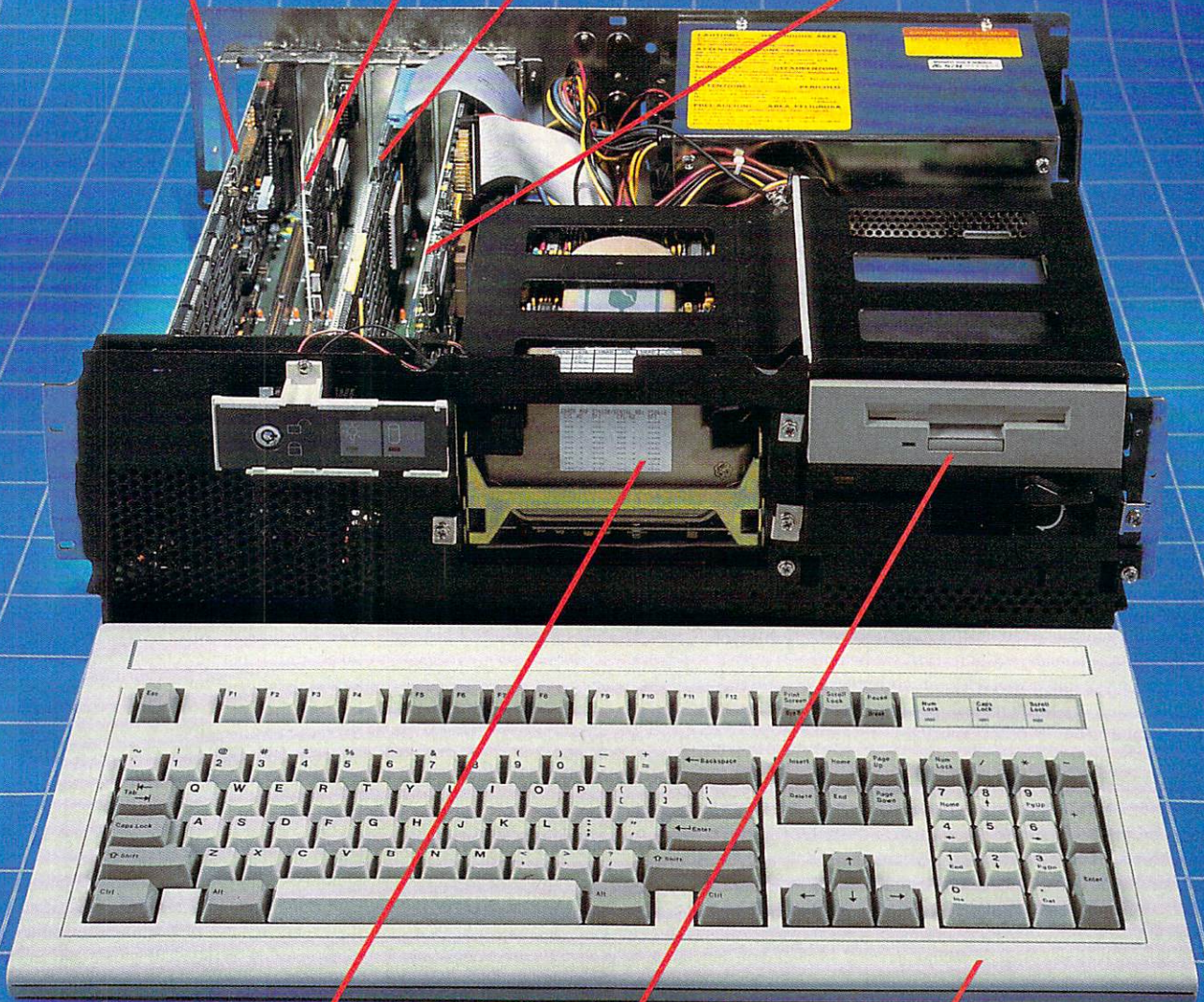
Anatomy of an Upgrade

Adding a memory card will increase the amount of RAM in your computer. This extra RAM can be used with programs like *DesqView* to run more than one program simultaneously or with programs like *Lotus 1-2-3* to hold larger spreadsheets in memory.

New video cards will give you faster screen refresh, more colors, and better resolution than the older standards.

An accelerator card can make your PC or compatible run most programs at almost the same speed as an AT or compatible.

A combination hard/floppy drive controller card can save you a slot without sacrificing storage capabilities.



A new hard-disk drive will increase your storage space for programs and data and give you more reliable operation.

A 3.5-inch floppy drive makes transferring data between your computer and laptops and IBM PS/2's easier.

Finding a keyboard that "feels right" will increase your productivity.

As a rule of thumb, you should spend no more than half the price of a new computer to enhance your current machine.

more responsive, recalculating spreadsheets faster, finishing search-and-replaces sooner, and taking less time to repaint complex graphics. Sometimes, however, the turbo mode is not enough. You may need the power of an 80286 or 80386—obtained by installing an accelerator card.

Straight accelerator cards most commonly replace an 8088 microprocessor with a more powerful 80286 chip running about twice as fast as the 8088. In addition, they give you the ability to use an 80287 math coprocessor to further accelerate math operations. Two excellent examples of this type of card are AST's Hot Shot/286 (\$645) and Orchid's TinyTurbo (\$445). These are half-slot cards that you can install, configure, and forget.

Another class of coprocessor card goes one step further. Boards like the Quad386XT from Quadram Corporation also include high-speed memory on the board. They utilize the 8088 and motherboard RAM in your computer only for input/output functions. While these cards are often OS/2 compatible and can handle large amounts of memory, you might instead consider buying an AT clone. Good-quality clones are available for about 30 percent more than these boards. (For more information on new AT and 386 computers, see "Buyer's Guide to Systems" in this issue.)

Some manufacturers offer replacement main-system boards, which turn PCs and XTs into super-high-speed 80386 computers. Perhaps the best-known such product is the Hauppauge 386 MotherBoard/XT (Hauppauge Computer Works, Inc.; \$1,595). While \$1,600 is a reasonable price to pay for a 16MHz 80386 computer, I can recommend these products only to those who are intrepid gadgeteers. These boards are difficult to install and require a lot of time to make them work correctly. (For more information on speeding up your computer, see "The Quest For Speed" in our August issue.)

BUILD MORE STORAGE SPACE

Just as a house can never have too many closets, a computer always needs more disk storage. Prices have dropped significantly on hard-disk drives; a 20MB Seagate drive with controller is commonly available for \$250-\$275. If you haven't added a hard-disk drive yet or if you have an old 10MB drive that is filling up or starting to show bad sectors, it's time to shop for a hard-disk drive.

I recommend the 30MB kits over the

A MUST FOR THE PC

If you have an older IBM PC or compatible, upgrading can be a problem. Before you can add a hard-disk drive to an IBM PC, you'll have to upgrade the BIOS chip and the power supply at a cost of about \$200. Also, since these older machines have probably seen a lot of use, adding extra peripherals is more likely to create problems. However, as long as you change the BIOS and power supply, an IBM PC can use any and all of the boards and peripherals mentioned in this story.

20MB units. For a few dollars, you can have 50 percent more storage and slightly better performance. Some vendors sell a Run Length Limited, or RLL, controller card, which offers a bit faster performance at a premium price. Since some tests indicate that an RLL drive actually slows down as it fills up, you will probably be just as well off with the standard controller.

And if you have the room, add a 720K 3.5-inch floppy drive. You can buy a Toshiba drive for a discount price of about \$160, which will give you complete compatibility with laptop disks and a more efficient medium for doing backups. The installation is

straightforward in most PCs and XTs, and the only requirement is that you must use MS-DOS 3.2 or later.

DISCOVER A NEW LOOK

The type of display adapter that you use can dramatically affect the speed of your computer. I was very disappointed with the performance of the AST Hot Shot/286 that I installed in my XT until I realized that my slow IBM CGA adapter was causing the screen to lag far behind the computer.

Monochrome displays are the fastest; if speed is your issue, avoid color. But, if like many people, you want and need color, newer EGA and VGA standards are faster than the original CGA. If you are moving up from a monochrome display, I suggest going with a VGA adapter. VGA has a slightly higher discount price than EGA but gives you better resolution and more colors. VGA requires an analog monitor, but most boards have both analog and digital outputs. Some adapter cards to consider are the VGA Plus (Western Digital/Paradise Systems; \$449), VEGA VGA (Video Seven; \$499) and VGA/H (Sigma Designs; \$399).

SWAP KEYBOARDS

Another item that you might want to replace is a less than satisfactory keyboard. The Northgate OMNI KEY/102 (\$89) features the separate cursor keys of the AT keyboard but retains the vertical function keys of the XT. Northgate's keyboards have earned a reputation for excellent construction and feel and can be tested on a 10-day free trial basis. A model with the function keys across the top is also available.

BACK IN THE RACE

As you can see, there's a lot you can do to jazz up your plain Jane PC or XT for far less than the cost of a new computer. In terms of getting work done, I'll stack my turbo-XT compatible up against any AT around—and any 386, for that matter. From a technical point of view, the 8088 machines are obsolete. But as long as DOS dominates OS/2 as the operating environment of choice, and there are no indications of change, there will be no significant reason for changing computers—as long as you have added the speed, memory, and storage that you need! ■

Next month, HOME-OFFICE COMPUTING will look at ways to upgrade an Apple II.

MANUFACTURERS MENTIONED

AST Research, Inc., 2121 Alton Ave., Irvine, CA 92714, (714) 863-0181; ATI Technologies, Inc., 3761 Victoria Park Ave., Scarborough, Ontario M1W 3S2, Canada, (416) 756-0711; Hauppauge Computer Works, Inc., 175 Commerce Dr., Hauppauge, NY 11788, (800) 443-6284, (516) 434-1600 in NY; Intel PCEO, CO3-07, 5200 NE Elam Pkwy., Hillsboro, OR 97124, (800) 538-3373; Northgate, 13895 Industrial Park Blvd., Suite 110, Plymouth, MN 55441, (800) 453-1400; Orchid Technology, 45365 Northport Loop West, Fremont, CA 94538, (415) 683-0300; Quadram, One Quad Way, Norcross, GA 30093, (404) 923-6666; STB Systems, Inc., PO Box 850957, Richardson, TX 75085, (214) 234-8750; Seagate Technology, 920 Disc Dr., Scotts Valley, CA 95066, (800) 468-3472; Sigma Designs, 46501 Landing Pkwy., Fremont, CA 94538, (415) 770-0110; Toshiba America Inc., Information Systems Division, 9740 Irvine Blvd., Irvine, CA 92718, (800) 457-7777; Video Seven Inc., 46335 Landing Pkwy., Fremont, CA 94538, (800) 238-0101, (800) 962-5700 in CA; Western Digital/Paradise Systems, 99 South Hill Dr., Brisbane, CA 94005, (415) 468-7300.

How To Find Lost Files... Fast

Several Solutions for Users of Hard-Disk Drives

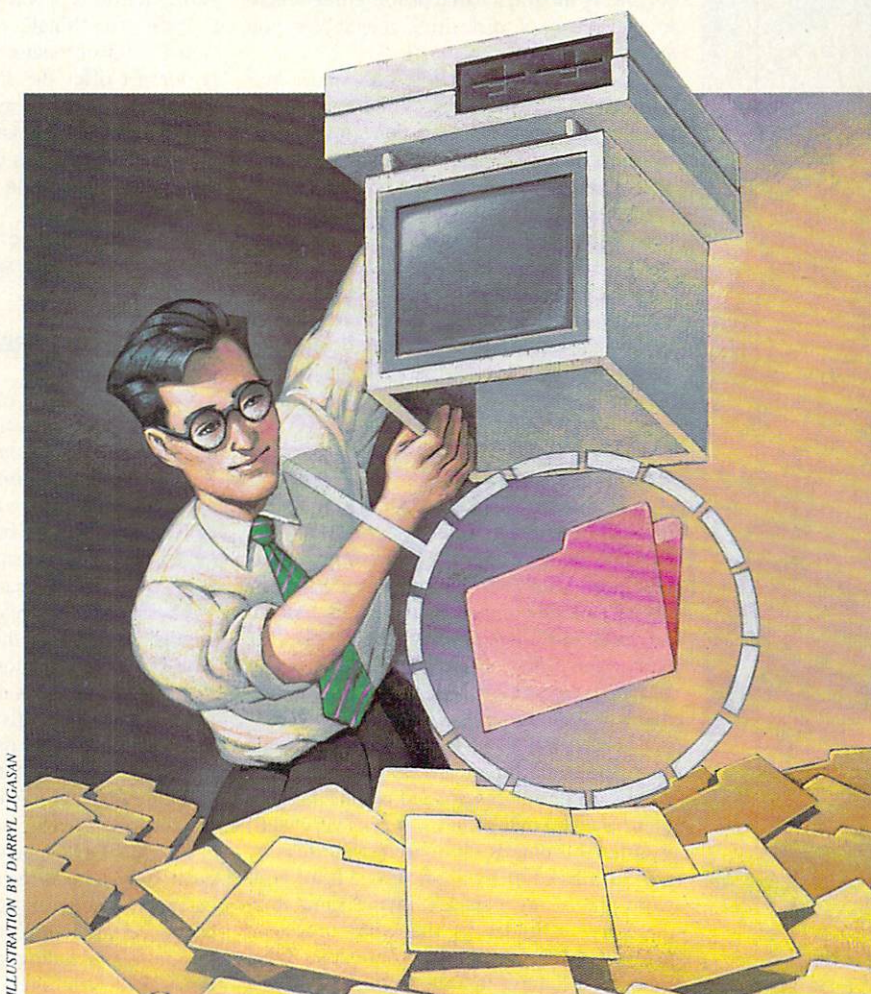
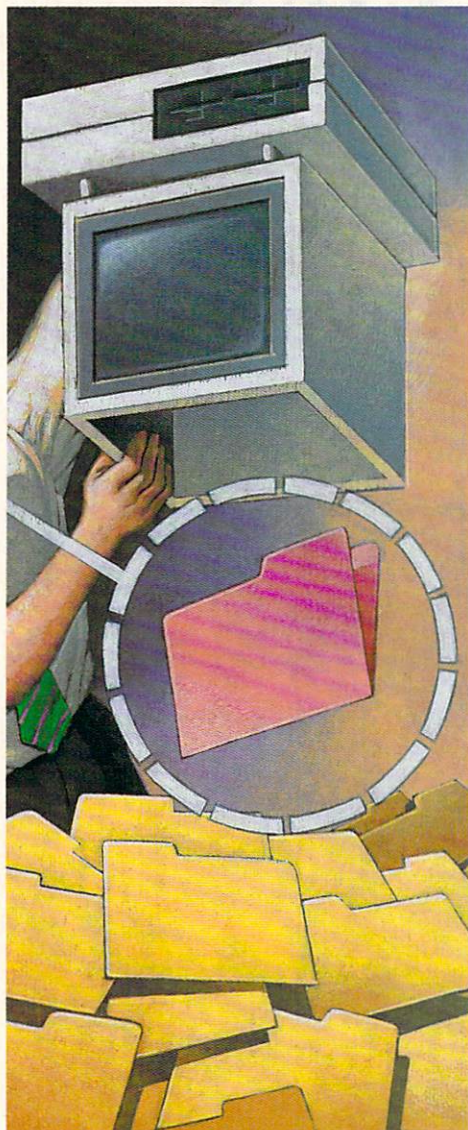


ILLUSTRATION BY DARRYL LIGASAW

BY STEVE MORGENSTERN

As someone who owns several computers and writes about them regularly, I often hear about computing problems from friends and associates. One of the most common problems—heard from novices and veterans alike—has to do with finding specific files

Thinking creatively about the way you use your computer— and organizing your files based on that pattern— works well when you need to find files.



stored on a hard-disk drive. The files get lost!

Now you might think, "How can you lose a data file when you know that it's on your drive?" The two most common ways are forgetting the file's name or forgetting where in the ocean of disk-drive megabytes you stored the data.

Do these reasons for lost files ring a bell with you? My diagnosis of the situation is simple: an overwhelming concentration of information in a single high-megabyte storage medium (meaning: lots of files on one hard-disk drive), possibly complicated by poor organizational habits.

I have a few software recommendations for locating particular files on hard drives (or even on densely packed floppy disks). But before I prescribe medicine to alleviate the symptoms, let's look at the cause and try to prevent it.

SAVVY WAYS TO SET UP A HARD-DISK DRIVE

Whether you are using MS-DOS, the Macintosh Hierarchical File System (HFS), or ProDOS on an Apple II, your computer lets you store your individual files in compartments and subcompartments called *root directories* and *subdirectories* (MS-DOS), *disk names* and *folders* (Mac's HFS), or *volumes* and *directories* (ProDOS). Setting up too many of these groupings is almost as confusing as lumping all your files together in one heap. But thinking creatively about the way you use your computer—and organizing your files based on that pattern—works very well.

Often this entails subdividing your files by project instead of by application. If all your word-processing files are in the same subdirectory or folder as the word processor itself, you're asking for confusion. Over time, you'll have hundreds of files in the same compartment. If all the files for a single paper, report, or publication are in a subdivision dedicated to that project, however, your search becomes much easier.

For example, when I am putting together a newsletter for desktop publishing, all of the art, word-processing, and database files related to that issue of the newsletter go into a single clearly labeled subdirectory. Within that subdirectory, I set up such additional divisions as a subdirectory for article text, another for correspondence, and another for graphics files.

Adopting a consistent naming system that's meaningful to you helps in finding files, too. This can include systematically using the three-letter extension preceded by a period allowed in MS-DOS to tag your files ("FIN" for "final" or "RV3" for "revision 3," for instance). ProDOS on the Apple II doesn't offer the same formal file-name extension, but the identical method will work well anyway. Mac users don't technically have such extensions either, but can simply adopt the convention with or without the period.

Enough preventive medicine. Now let's go file-hunting with several utility software solutions.

SOFTWARE THAT CREATES DISK STRUCTURES

One popular type of software for making hard-disk-drive organization more comprehensible creates an on-screen tree diagram. Such diagrams are similar to a corporation's organizational chart with the company president at the top and branches spreading out below for vice presidents, more branches below the VPs for managers, and so on.

These programs read your file names off the disk and display them as a tree structure. You can isolate sections of the tree to zoom in on areas you think might hold the missing file and read file statistics—such as creation date and time—and path locations from the screen. (In addition to finding files, tree-structure displays are also useful for such file handling as copying, moving, and renaming.)

For MS-DOS machines, *XTree* from Executive Systems is the classic program in this category. The publisher recently released an enhanced version, *XTree Pro*. Several other programs, including many "DOS shells," also have a tree-diagram function (see "Getting More From PC-DOS and MS-DOS" in the November 1987 issue for more about DOS shells). For Macintosh users, there's *MacTree* from GO Technology, Inc.

Personally, I don't find the visual tree structure an effective way of locating a wayward file. The files aren't more organized than they were when I started; they're simply in a different, albeit more visible, shape. More valuable are the "Show All" commands included with these programs. These allow you to start at any level of the hard-disk-drive organization (including the entire disk, if you like) and have the program display a list of all the files in that division.

What's the advantage of this form of list

STEVE MORGENSTERN is a contributing editor
for HOME-OFFICE COMPUTING.

Whether you choose a software solution, decide to name and organize your files more meaningfully, or a bit of both, you'll save time. And isn't that why you're computing to begin with?

over a regular directory listing by name? Without a tree-structure program, at the normal MS-DOS prompt I can request a listing of a single subdirectory but cannot get a compiled list of all the files in all the subdirectories. However, with a utility program such as *XTree*, the directory listing lumps files together from as many subdirectories as I'd like into a single list that can be arranged according to needs—for example, alphabetically by name, by date created, or by size (if I'm looking for an enormous file).

COMPUTERIZED SEARCHING TOOLS

An easier way to find a missing file is to let the computer do the looking for you.

The ultimate file retrieval tool is *GOfer* from Microlytics. You can run *GOfer* as a memory-resident program or as a stand-alone in the MS-DOS version, but the pop-up convenience of memory residence is the way to go if you have the RAM to spare. The Mac version is a desk accessory, and so can pop up within any application.

GOfer will search for file names, or it can look for text within a file. Say you're looking for that letter you wrote to the law firm of Hammond, Hammond, Smith, and McCormack. You have no idea what you named the file. No problem. Send *GOfer* off to search for Hammond and sit back while the program does the work.

GOfer allows for sophisticated search criteria. You can specify a search for two text strings appearing together, either one or the other, or two strings that occur near each other. You can even specify the degree of exactness for the search. Can't remember if there's one "m" or two in Hammond? You can set *GOfer* to look for all text that is almost the same as the name you type in.

Several useful extras are included with *GOfer*. For example, you can read a file from within *GOfer* using the Browse function. There is also a file-compression utility to

save disk space (MS-DOS version only). If you are conducting an extensive, time-consuming search, you can have *GOfer* write the results directly to a disk file to read through later. And, even without MultiFinder, the Mac version will work in the background as you use another program. *GOfer* is a powerful, easy-to-use utility, well worth the \$80.

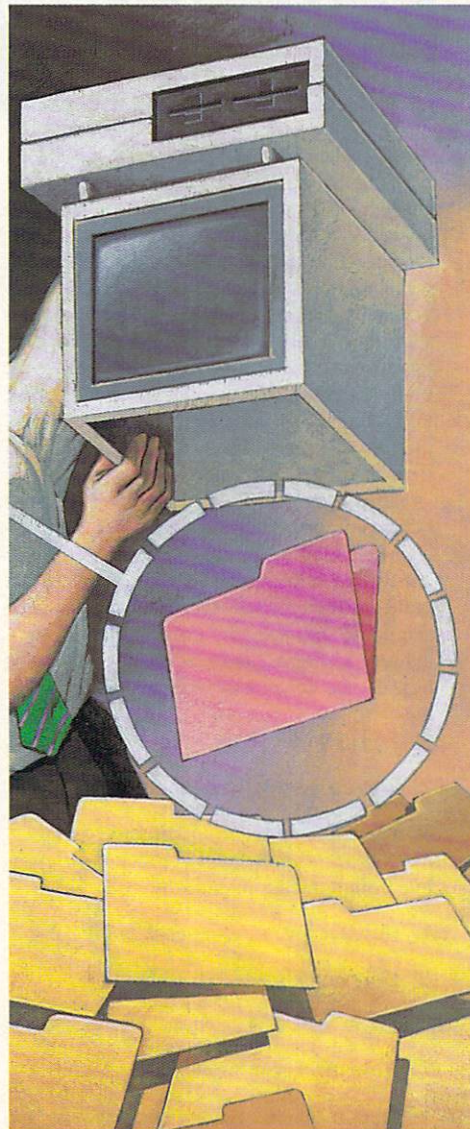
For simply searching by file name, Macintosh users receive a desk accessory (DA) called *Find File* with their system software. It's a good start, but not perfect.

Find File lets you select the disk or folder to search, enter the part of the file name you remember, and send the computer off to carry out the search. It spins the drive and produces a list of file names that match your search criteria. You can display information about these files on the screen, including their location on the hard disk (or floppy, for that matter). What you can't do with *Find File* is start an application or load a file from within the desk accessory; instead you must exit the DA and use conventional file-opening techniques. You also can't find a file if you can't remember at least part of its name.

A more elegant solution is *Findswell* from Working Software. It comes with a slim instruction booklet; and that's plenty, since *Findswell* is as intuitive and easy-to-use as Mac software is supposed to be.

Installation is a snap—just drag the *Findswell* icon into your System Folder and reboot the computer. From then on, every time you call up the Open dialog box, an extra button appears. Click on that button and you are in *Findswell*. You specify part of a file name and where you want to search, and *Findswell* goes to work, quickly searching your disk and displaying a list of matches complete with file information. Files that cannot be opened from within your current application are grayed out. Double-click on the name of the available file you want, and it is opened for you. A nice extra touch in *Findswell* is the option to place a check mark next to the name of a file. Every time you use *Findswell*, all check-marked files are automatically included in a list of selected files. Thus, *Findswell* can operate as an easily accessed minifinder for opening files quickly from within your applications.

Whether you choose a software solution to the problem of lost files, decide to name and organize the files on your drive more meaningfully, or a bit of both, you'll find yourself saving time. And isn't that why you're computing to begin with? ■



FIVE FILE FINDERS

Findswell v2.0 (\$60). Working Software, Inc., (408) 423-5696. Requires: 512K Macintosh

GOfer v1.0 (\$80). Microlytics, Inc. (716) 377-0130. Requires: 128K IBM PC or PS/2, 1MB Macintosh

MacTree v1.1 (\$70). GO Technology, Inc. (702) 831-3100. Requires: 512K Macintosh

XTree v2.0 (\$70), **XTree Pro** v1.0 (\$129). Executive Systems, Inc., (805) 541-0604. Requires: 256K IBM PC or PS/2

The Paper Race

HOME-OFFICE COMPUTING Finds the Best Way to Send a Letter When It Absolutely, Positively Has To Be There Yesterday

BY MARIE ALVICH

The Pony Express, established in 1860, took a relay team of the most daring riders at least a week to carry mail from New York to California. Although dangerous and unreliable, it was the fastest way to deliver mail over long distances. This romanticized form of mail service was also exorbitantly priced for that time period: \$5 per half ounce (the equivalent of \$66 today). Never a great success, the Pony Express went out of business in less than two years—when the first telegraph lines reached California.

More than a century later, mail-delivery choices are greater, faster, cheaper, and safer. Most small-business owners who need to expedite a letter seem to rely on overnight mail, or they bypass the letter carriers and send and receive documents via fax machines, modems, and on-line services. The best choice depends on several factors:

- 1) To whom the letter is going.
- 2) The image you wish to convey.
- 3) Whether or not you and the receiving party have fax machines, modems, or on-line communications options.
- 4) How far away the letter is going.
- 5) How quickly it needs to be there.
- 6) The length of the letter.
- 7) How much you're willing to spend.

There's much debate over the best and fastest way to send a letter. In a quest to find the superior method, HOME-OFFICE COMPUTING held a paper race: We took a .5-ounce 2-page letter and a 6-ounce 30-page manuscript and, using a number of different methods, sent the documents from the East Coast (New York City) to the West Coast (Marina Del Rey, California). What follows, in the order of finishing times, are evaluations of our contestants. Besides speed, all were judged on cost, reliability, ease of use, and impact. The results, which may surprise you, are posted below.

MARIE ALVICH is associate technical editor of HOME-OFFICE COMPUTING.

Modem to Modem

Document	Cost	Speed	Insurance
2-page letter:	\$.64	1¼ minutes	none
30-page manuscript:	\$2.32	7 minutes	none

If you and your correspondents have—and use—computers, modems, and communications software, you can transmit ASCII files over the phone lines. Once you set the parameters (baud rate, duplex, parity, and number of bits, for instance) on both the sending and receiving ends, transferring documents takes a matter of minutes. And, yes, it's easy, as long as you know what you're doing.

Sent from New York City to California via a 1200-baud modem at 3 p.m. on a weekday afternoon, our 2-page and 30-page letters outpaced all of their competitors. Of course, someone on the receiving end had to be available to set up and monitor the transmission of files. After the transfer was completed, the documents were saved onto disk and printed.

Biggest Plus. You can quickly send a letter without leaving your computer.

Biggest Minus. Setting up and implementing a modem-to-modem connection can be frustrating and complicated for both parties.

Facsimile Machine

Document	Cost	Speed	Insurance
2-page letter:	\$.64	1½ minutes	none
30-page manuscript:	\$6.24	22 minutes	none

High-flying executives have removed "Let's do lunch" from their lingo and replaced it with "Fax it to me." If you can't oblige, you may lose business or, at the least, lose face.

And as you can see by our results, all the hoopla over fax machines is justified. In our test, the Hitachi HIFAX-17 facsimile machine took one-and-one-half minutes to send the 2-page letter and 22 minutes to send the 30-pager. The documents were sent at 4 p.m., when peak phone rates apply. One glitch: We had to resend part of the 30-page document because noise on the line discon-

nected us from the receiving fax machine.

Facsimile machines are to paper what telephones are to voices. For communications, they're fast, convenient, impressive, and a breeze to use. Unfortunately, the receiving party needs a fax machine. Units usually cost \$900 at least, and the output from low-end facsimile machines is far inferior to original or photocopied material.

Biggest Plus. If you want to project a professional image, this is one of the great ways to do it.

Biggest Minus. The receiving party needs a fax machine.

CompuServe

Document	Cost	Speed	Insurance
2-page letter:	\$.20	37 seconds	none
30-page manuscript:	\$1.26	6 minutes	none

* CompuServe took 12 minutes to post the 2-page letter and 59 minutes to post the 30-page letter in the California recipient's account.

Subscribers to CompuServe, an on-line communications service, often send letters and documents to other CompuServe subscribers via electronic mail. The letter will be in the receiver's "mailbox" ready to be read or printed out when he or she logs onto the service.

We sent our documents at 2:30 p.m. using a 1200-baud modem. While CompuServe is usually just a local phone call away—no matter who you're calling—other charges, called connect charges, apply. CompuServe charges you 20 cents for every minute you're on-line with a 1200- or 2400-baud modem. Connect-time costs are always the same, 24 hours a day.

Biggest Plus. It's the least expensive way to send a letter.

Biggest Minus. Receiver must have a modem and be a CompuServe subscriber.

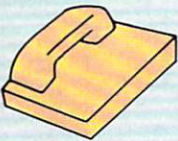
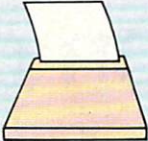
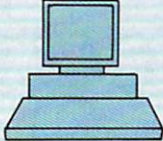



Federal Express

Document	Cost	Speed	Insurance
2-page letter:	\$14	1 day	Free up to \$100
30-page manuscript:	\$14	1 day	(for up to 8 ounces). Additional coverage is extra.

No doubt about it, Federal Express, the most widely recognized overnight delivery service, is fast and reliable. And dressed up in its urgent orange and blue envelope, your letter demands attention upon its arrival.

Our two documents were picked up by a uniformed Federal Express person on Tuesday evening and reached California at 9:30 the next morning. If we had dropped them off at a Federal Express office, we would

THE SCOREBOARD: RATING THE CONTENDERS

	 Modem To Modem	 Facsimile Machine	 CompuServe	 Federal Express	 US Mail's Express Mail	 UPS Next Day Air Letter
★ Fair						
★★ Good						
★★★ Very Good						
★★★★ Excellent						
Cost of sending	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Speed	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Reliability	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Ease of Use	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Impact	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★

have saved \$3 on each document.

Biggest Plus. A letter that leaves your hands at the end of your workday will still reach its destination by the next morning.

Biggest Minus. The cost: If you send a lot of urgent mail, your Federal Express bills will eat away at your profits.

U.S. Mail's Express Mail

Document	Cost	Speed	Insurance
2-page letter:	\$8.75	1 day	Free up to \$500
30-page manuscript:	\$8.75	1 day	(for up to 8 ounces).

Like Federal Express, the U.S. Mail's Express Mail promises next-day service. It costs less than Federal Express but isn't guaranteed to reach its destination by morning. "Delivery made or attempted by 3 p.m. the next day" is written right on the envelope.

We took the 30-page manuscript and the 2-

page letter to the post office at 8:30 a.m., and the bright blue envelopes arrived in our California office at 2:30 p.m. on the following day. You can put the postage on the envelope yourself and drop it into an Express Mail collection box or, if you have an Express Mail Corporate Account, you can mail it without postage.

Biggest Plus. It's 40 percent less expensive than Federal Express.

Biggest Minus. Unless you have \$8.75 worth of stamps or a postage meter and an Express Mail envelope, you'll have to dash over to the post office before closing time.

U.P.S. Next Day Air Letter

Document	Cost	Speed	Insurance
2-page letter:	\$8.50	1 day	Free up to \$100.
30-page manuscript:	\$8.50	1 day	Additional coverage is extra.

Less expensive than Federal Express and Express Mail, U.P.S. Next Day Air Letter will also deliver your document in a special envelope and require a signature. U.P.S. makes pickups between the hours of 9 a.m. and 7 p.m., but you'll have to call them a day in advance. Both letters we mailed using this service reached California at 10 a.m., the morning after they were picked up.

Biggest Plus. Less expensive than Federal Express and Express Mail.

Biggest Minus. U.P.S. doesn't always pick up your letters the day of your call.

All of the methods we tested are acceptable for speedily sending mail over a long distance, but just one or two of them will best suit your needs. If you examine the "Scoreboard," you should be able to make the smartest express mail decisions for your business. Whichever option you prefer, be thankful that it's not 1860. ■

A Selection of MS-DOS and Macintosh Computers for Business Use

BY THE EDITORS AND REVIEWERS OF
HOME-OFFICE COMPUTING

When shopping for a computer for business use, you have two main choices: MS-DOS compatibles or the Macintosh. These computers combine speed, high storage, and software selection and are supported by dealers across the country.

We have broken MS-DOS computers into several categories: AT compatibles, 386 computers, PC/XT compatibles, and IBM PS/2 computers. We introduce each category with a brief summary of features common to the field. A more in-depth description of machine types can be found in last month's cover story, "Mac vs. MS-DOS vs. OS/2."

Ideally, a computer should be a good value, fast, trim, readily expandable, well supported by the manufacturer, and widely available. That is, a good machine should *not* be hard to find.

All computers reviewed here have three of the qualities listed above: They are reliable, well-supported, and widely available. If a machine is weak in one area, it compensates with strength in another. A computer that is large and bulky is included if it is fast and expandable. A computer that is slow is included if it is inexpensive.

Reviews of AT machines come first, as they are the most popular machines on the market today. When reading the reviews—which highlight the best and worst features of a given machine—look to the respective charts for details about price and included equipment. Keep in mind that all manufacturers sell a range of models, and most can mix and match disk drives and monitors with a given computer to match your needs and price range.

The relative value of a computer (price versus performance) is tough to evaluate. If a computer is to be used for business, the money spent on it is an investment in that business and should be treated as any other

investment. Good investments are tricky enough under any circumstances, and the rate of change in technology products complicates matters further. But there are two rules of thumb: Find a computer that does what you need done now, not one that might accomplish your tasks in the future; and buy a little more than you think you need since your needs will probably expand.

New model introductions from Tandy and IBM were not received in time for our hands-on reviews, so our reports are based on press materials and briefings. Tandy and IBM have

good track records, so we feel confident in listing these machines untested.

The list is conservative. Other machines may fulfill your needs—depending on your knowledge, pocketbook, and locale. But when it comes to making recommendations, we have looked to machines we know will give good service for many years.

In addition, we have highlighted a few computers as Editors' Picks. These are computers that the magazine's editors have bought, or would consider buying, with their own money.

AT COMPATIBLES

★ EDITORS' PICK ★

AST Premium/286 Model 140

There is a fineness of design and finish to the AST Premium/286—to say nothing of functional reliability—that bespeaks a serious effort to attract and keep customers.

The computer operates at 6MHz, 8MHz, or 10MHz. Unless you've got a quirky piece of software, you'll probably never run the Premium/286 at less than 10MHz, which is not fast, but certainly respectable.

The 101-key enhanced AT keyboard is a genuine pleasure to use. It has a positive feel with a slight click and seems built to take a lot of pounding. Weighing in at about 30 pounds, the computer is built to last.

Two of the seven slots are called FAST-slots, special two-connector slots for AST's optional add-on high-speed FASTRAM memory cards. The computer comes with a 5.25-inch drive and can handle two additional floppy drives.

One feature I really like is the superfast boot routine. The C> prompt is up and

The AT-type computer, based on the Intel 80286 microprocessor, is currently the most popular for home-office use. Ironically, IBM no longer makes the IBM PC AT, after which today's ATs are modeled. For a large percentage of computer users, an AT computer with the right mix of enhancements (memory, video, and disk drives) offers the best value.

AT computers can run Operating System/2 (OS/2), the new operating system that allows multitasking and can address up to 16MB of RAM. So even if you have no need for OS/2 now, it is at least an option for the future.

AT computers can accept both 8-bit (PC and XT) and 16-bit (AT) expansion boards; if you already have a PC or XT, you should be able to utilize your expansion boards. On ATs, 5.25-inch floppy-disk drives store 1.2MB, and 3.5-inch floppy-disk drives, 1.44MB. Depending on your software needs, you might want to look for a machine that can hold both types of drives, as well as a hard-disk drive. The most common AT hard-disk drive is 40MB.

awaiting input in a matter of a few seconds.

The User's Reference is one of the best such manuals around, and there are manuals for the included software. Among the utilities are *FASTdisk* (a RAM disk), *Super-Spool* (print spooler), *REMM* (expanded-memory manager), *REX* (extended-memory manager), and *ASTCache* (disk-caching program). Everything is explained well enough to help you accomplish the various tasks expeditiously.

The AST Premium/286 is made to work, and work well. One imagines that the machine could be left on forever without any problem.

—HENRY F. BEECHHOLD

★ EDITORS' PICK ★

DELL System 220

Dell Computer Company is a four-year-old direct-sales manufacturer in Austin, Texas that sells primarily by phone and

mail. Dell has done a first-rate job building, marketing, and supporting its computers.

At 20MHz, the 220 is as fast as any AT on the market (Kaypro also sells a 20MHz AT), and a good match for some 386 machines. The blazing speed lets you run graphically oriented software like Microsoft *Excel* or *Ventura Publisher* with comfort. You'll save time when calculating spreadsheets, accessing diskettes, and producing charts. And, since more and more software utilizes graphics, you'll be well positioned to take advantage of new software as it comes out.

The System 220 is attractively designed and has a small footprint. I do have one complaint about the design: The three expansion slots are positioned horizontally (to save space), but they have a sharp-edged metal chassis around them, so that replacing cards or memory chips is not only awkward, but may require Band-Aids.

Are three slots enough for you? In most cases, yes. Many of the features you normally need to add via cards—memory, graphics, printers, and modems—are already handled on the system board. For example, the system board can hold up to 8MB of memory.

To assuage fears about buying through the mail, Dell has contracted with Honeywell-Bull to provide a 1-year on-site service contract, which comes standard with your System 220. So when I powered up my computer and received MEMORY PARITY FAILURE ERROR messages spewing across my screen, I wasted no time calling Dell's 800 number for technical support. The customer support representatives at Dell were exceedingly knowledgeable, friendly, and well organized. Within 24 hours, a Honeywell-Bull representative was in my apartment replacing the motherboard free of charge.



Dell System 220



Leading Edge Model D2



NEC PowerMate 1 Plus



AST Premium/286 Model 140



Kaypro 286



Tandy 3000 NL



Zenith Z-286 LP



Epson Equity III+

As with any machine, one can find little faults. I'm not crazy about the keyboard, which has what I consider mushy keys. The Mitsubishi color VGA monitor—one of three you can order with the machine—also bothers me; when it's displaying the truly gorgeous VGA graphics, a series of wavy lines are fairly visible across the screen.

Product, price, and service—these are the factors you should consider when buying a computer. The System 220 receives high marks on all three counts.

—ROBERT GEHORSHAM

Epson Equity III+

Equity III+ is a large and solidly built computer. With a 12MHz clock speed, the III+ is not the fastest AT computer around, but it will satisfy all your basic needs. The system is sold without a video card or monitor; if your dealer doesn't set up the system for you, the manual provides clear and detailed instructions.

Our test unit came with a 5.25-inch floppy disk drive, a 40MB hard drive, and an EGA card and monitor. I kept the unit running for about a week with no problem, before turning it off. The keyboard is superb, one of the few I feel comfortable using.

My only complaint about the III+ is its size—about 20 inches wide and 17 inches deep (the same size as the original IBM PC AT). It can easily take over a small desk. However, it has nine full-size expansion

slots (seven slots available) and five half-height drives. If you need room for future expansion, the III+ is a good choice. However, if you don't need that many free expansion slots or don't have a large desk, consider the smaller Equity II+. It has a top speed of 12MHz and room for three half-height drives.

—STEVEN C.M. CHEN

Kaypro 286

What makes this otherwise ordinary computer intriguing is the promise of future expandability built into the system design. Instead of using a traditional motherboard mounted on the floor of the system unit, Kaypro has put the system hardware on a board installed in one of the nine slots. (Five slots are available for system expansion after the required CPU, memory, video, and hard/floppy-disk drive controller cards are in place.) This design means that sometime in the future the user could pull the CPU board out of the computer and replace it with a more powerful microprocessor—perhaps an 80386 CPU board or even its successor. Kaypro calls this its non-obsolete design.

The 101-key keyboard is soft and verges on being mushy. I'm used to more precise feeling keys, but quickly became accustomed to the Kaypro keyboard.

The included ATI EGA Wonder video board provides EGA graphics on a monochrome monitor. Unfortunately, the system's green monochrome monitor (you can

also choose an amber monitor) is pretty close to hopeless. No matter how I adjusted the controls, there was an extremely disturbing afterimage that lingered as text scrolled up the screen. On the other hand, when connected to a NEC MultiSync color monitor, the EGA Wonder board delivered impressively sharp results with good color.

After you have formatted the hard-disk drive, an automatic installation program sets up subdirectories, copies all the included software (MS-DOS, GW BASIC, and Microsoft Works) to the hard disk, and provides a menu from which you can select programs.

The 286 is the kind of computer you'd expect from Kaypro. It's big and solidly built, delivers capable but not flashy performance, and sells for not much more than the generic clones.

Kaypro also makes a 20MHz version of the 286 that sells for \$4,489.

—STEVE MORGENSTERN

Leading Edge Model D2

The Leading Edge is like a movie with word-of-mouth popularity: You don't read anything about it, then suddenly you realize that a lot of people know about it or use it. The reasons are that the D2 is a good deal and has a good reliability record.

The D2, however, is not a trend-setter. It's not particularly fast, though 10MHz will certainly get you where you're going on time. It doesn't have VGA graphics built-in,

AT COMPATIBLES

Company/ Model	System Price	Standard/ System Memory ¹	Floppy- Disk Drives ²	Hard-Disk Drive/ Access Speed	Monitor	Ports Included	Free Expansion Slots	Micro- processor Speed (MHz)	Wait State (Cycles) ³	Software Included	Warranty (Months)
AST Research, Inc. AST Premium/286 Model 140	\$4,190	1MB/4MB	1	40MB/28 ms	Mono	P, S, eEGA	4 AT, 2 16P	6/8/10	0	DOS, GW	12
Compaq Computer Corp. Compaq Deskpro 286 Model 40	\$4,773	640KB/8.1MB	1	40MB/30 ms	Mono	P, S, MG	5 AT, PC	8/12	1	DOS, GW	12
Dell Computer Corp. Dell System 220	\$3,119	1MB/8MB	1	40MB/29 ms	Mono	P, S, VGA	3 AT	8/20	1	DOS, GW	12
Epson America, Inc. Epson Equity II Plus Epson Equity III Plus	\$3,297 \$3,597	640KB/640KB 640KB/640KB	1 1	40MB/28 ms 40MB/28 ms	Mono Mono	P, S, MG P, S, MG	3 AT, PC 7 AT	8/12 6/8/12	1 1	DOS, GW DOS, GW	12 12
IBM Corp. IBM PS/2 Model 50 Z-031 IBM PS/2 Model 60-041	\$4,365 \$5,665	1MB/1MB 1MB/1MB	1 ⁴ 1 ⁴	30MB/39 ms 44MB/40 ms	Mono Mono	P, S, M, VGA P, S, M, VGA	3 MCA 7 MCA	10 10	0 1	DOS, GW DOS, GW	12 12
Kaypro Corp. Kaypro 286 Kaypro 286i Model C	\$3,295 \$4,489	1MB/1MB 1MB/1MB	1 1	40MB/35 ms 40MB/35 ms	Mono Mono	P, S, eEGA P, S, eEGA	2 AT, 3 PC 4 AT, PC	6/12 12/16/20	1 1	DOS, GW, MS Works DOS, GW, MS Works	12 12
Leading Edge Leading Edge Model D2 Leading Edge Model D2	\$1,995 \$2,395	640KB/1MB 640KB/1MB	1 1	30MB/60 ms 60MB/28 ms	Mono Mono	P, S, eEGA P, S, eEGA	4 AT, 2 PC 4 AT, 2 PC	6/8/10 6/8/10	1 1	DOS, GW, LE WP DOS, GW, LE WP	20 20
NEC Information Systems NEC APC IV PowerMate I Plus	\$4,945	640KB/640KB	1	40 MB/28 ms	Color ⁵	P, S, eEGA	5 AT, PC	12	0	DOS, GW	12
Tandy Corp. Tandy 3000 NL	\$3,219	512KB/640KB	1 ⁴	40MB/40 ms	Mono	P, S, EGA	3 AT, PC	8/10	1	DOS, GW	12
Zenith Data Systems Z-286 LP Model 40	\$4,298	1MB/6MB	1 ⁴	40MB/28 ms	Mono	P, 2 S, VGA	2 AT	8	0	DOS, MS Windows	12

KEY: 16P = 16-bit proprietary slot; AT = 8/16-bit expansion slot; eEGA = enhanced EGA (also supports monochrome graphics); GW = GW-BASIC; LE WP = Leading Edge Word Processor; M = mouse/pointing device port; MCA = MicroChannel Architecture slot; MG = Monochrome Graphics (Hercules-graphics compatible); Mono = monochrome; MS = Microsoft; ms = millisecond; P = parallel port; PC = 8-bit expansion slot; S = serial port; VGA = Video Graphics Array.

FOOTNOTES: ¹ Memory that comes with the basic system and maximum amount of memory that can be added without using an expansion slot; ² 1.2MB 5.25-inch floppy-disk drive, except where noted; ³ A wait state is a delay in the machine's processing cycle. For instance, zero wait state means the processor doesn't have to wait and can gain access to data as fast as needed; ⁴ 1.44MB 3.5-inch floppy-disk drive; ⁵ NEC MultiSync monitor.

CHARTS COMPILED BY STEVEN C.M. CHEN

as many ATs do. And it only comes with 640K, compared to the 1MB that many ATs offer.

On the positive side, the monochrome display is good and sharp, and the included EGA adapter will also work with a color monitor if you later upgrade. The keyboard is a delight to use, has a sharp touch, and attaches to the front of the system unit, which I find a more comfortable arrangement. The hard-disk drive is large (65MB) and relatively fast (28 milliseconds). Note that a 30MB model is also available for about \$400 less, but the drive is considerably slower.

The 20-month warranty is one of the longest in the industry. If anything breaks, Leading Edge will replace it. But Leading Edge dealers aren't as widespread as those of Compaq, IBM, and Tandy, so don't buy the machine unless you live near a dealer.

All in all, the D2 gives you your money's worth. The question is whether you want or need more state-of-the-art features.

—NICK SULLIVAN

NEC PowerMate 1 Plus

The PowerMate 1 Plus runs at 12MHz and can accept both 3.5-inch and 5.25-inch disk drives. Compared to the IBM PC AT that I use at the office, the NEC PowerMate Plus is much faster and has clearer documentation. The Owner's Guide is well written, easy to read, and concise.

The PowerMate is narrower than many AT machines (NEC calls it a small-footprint computer), but it's just as deep. The keyboard, consisting of separate cursor keys, numeric keypad, and function keys (across the top), is firm but responsive. The cord that attaches the keyboard comes from the back of the system unit, which makes it long and somewhat awkward on a desk.

NEC doesn't sell a monochrome monitor with the PowerMate, though you can obtain one from third-party manufacturers. The NEC MultiSync color monitor that came with the review machine is sharp and clear, and will also work if you upgrade from an EGA to VGA card.

One thing to watch for is that the advertised price of the NEC PowerMate generally doesn't include the cost of a monitor and graphics card. But when fully assembled, the PowerMate is a well-built, high-performance computer with the respected NEC name.

—ROBERT LoPINTO

Tandy 3000 NL

(This report is based on press materials and briefings; it is not a hands-on review.)

The Tandy 3000 NL, the latest version of the 3000 model, is an average performer, running at 10MHz. The computer comes with only 512K RAM, so you'll probably need to install more before tackling serious tasks. A Tandy-designed high-speed memory slot addresses up to 8MB of memory. A variety of hard-disk drives is available,

ranging from a slow 20MB drive to a fast 344MB drive. Three additional floppy drives (one 3.5-inch and two 5.25-inch) can be installed internally.

Zenith Z-286 LP Model 40

The Zenith Z-286 LP emphasizes two potentially important characteristics: a very small footprint (about one-third smaller than normal AT machines) and the ability to handle up to 6MB of memory right on the system board. If you progress into using OS/2 and other environments requiring massive amounts of memory, you may be very glad to have multiple-megabyte capabilities.

Nor is the Zenith a slouch when it comes to speed. While the CPU is rated at a modest 8MHz, it runs with zero wait states—which effectively revs up program execution by about 40 percent, according to Zenith. That's fine for most practical purposes, including running hardware-hungry programs such as Microsoft *Excel* and other *Windows*-based software at acceptable rates (*Windows* comes with the computer).

The price for the Zenith's compact size is less expandability, though most users will never feel this pinch. There is room for only

two internal disk drives—two 3.5-inch floppies (1.4MB capacity) or one floppy and one hard drive. There's no room for a traditional 5.25-inch drive, a limitation I take seriously since I have many programs that were not released on the smaller disks. Zenith does offer an external 5.25-inch drive, but that cuts down on the compact advantages of the small system unit and uses up one of the precious internal interface slots.

And precious is the word for the slots in this system. There are only three in all, one of which is taken up by a video display card. (The computer comes with a crisp VGA monitor). There are two serial ports, one parallel port, and a hard-disk controller built in, which lets you attach both an external mouse and an external modem without using up an internal slot.

Is the Zenith Z-286 LP the right computer for you? You have to weigh the advantages—its small size and large memory expansion capability—against the disadvantages—only three expansion slots and less than blinding processor speed. If you like the Zenith, however, you have to love the Dell 220, which offers a bit more for less money.

—STEVE MORGENSTERN

MACINTOSH

Macintosh computers are based on the Motorola 68000 line of microprocessors and don't run the same software as MS-DOS computers. Macintosh computers are further differentiated from MS-DOS computers in that the screen displays are graphics-based (made up of pixels), instead of character-based (made up of symbols), as on most MS-DOS displays. Thus, the Mac is generally better for graphics work such as desktop publishing, design, or presentations. The Mac's graphics orientation and mouse-based operating system are its distinctive features.

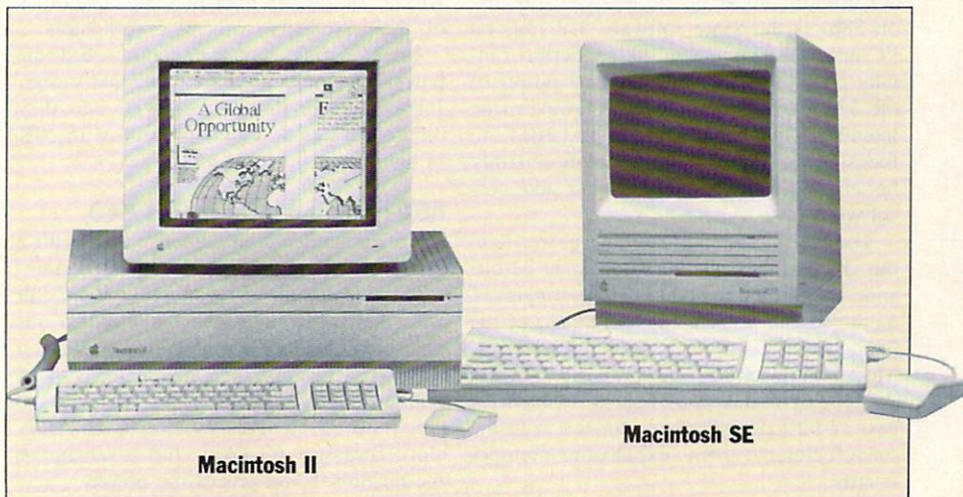
Even though comparing different systems is difficult, if not impossible, it's clear that feature for feature Macintosh computers are more expensive than MS-DOS computers. Since Apple is the only company that makes

Macintosh computers, it does not have to compete on price as MS-DOS manufacturers do. Many users think that owning a Macintosh is worth the extra cost, partly because the Macintosh operates in a consistent fashion across all program types. Once you learn the operating system you know how to use virtually any software.

★ EDITORS' PICK ★

Macintosh SE

The standard SE offers two built-in drives, and the second drive can be either a 20MB hard-disk drive or a second 800K floppy drive. The SE also includes an internal slot for adding such hardware as extra memory, a speed-up board, or a video interface for a



Macintosh II

Macintosh SE

MACINTOSH

Company Model	System Price	Standard/ System Memory ¹	Floppy-Disk Drive	Hard-Disk Drive/ (Access speed)	Monitor	Audio	Mouse	Printer	SCSI	Serial	Video	Free Expansion Slots	Software Included	Warranty (Months)
Apple Computer, Inc. Macintosh SE	\$2,898	1MB/4MB	2	n/a	Mono	Y	Y	Y	Y	Y	N	1	HyperCard, system software, utilities	3
Macintosh II	\$6,267	1MB/8MB	1	40MB/28 ms	Mono	Y	Y	Y	Y	Y	Y	5	HyperCard, system software, utilities	3

KEY: ms = millisecond; SCSI = Small Computer System Interface.

FOOTNOTES: ¹ Memory that comes with the basic system and maximum amount of memory that can be added to the motherboard without using an expansion slot.

large-screen or color monitor. However, all but the most technically adept users need a dealer's help to install any boards into the slot.

Other than this, the SE is exceptionally simple to set up and has all the ports to attach such common peripherals as a hard-disk drive, scanner, and graphics tablet. Compared to earlier Macs, the SE redraws the screen much more quickly when scrolling or moving to a new document or program.

The 20MB hard-disk drive is small for a business computer, though you can buy such higher-capacity internal drives from third-party manufacturers, such as Jasmine Technologies or Rodime. The SE has the small, desk-saving size that the Mac is famous for, but that limits you to a black-and-white display (without the grayscale capability of the Mac II). The system software is improving all the time, but some elements of it, particularly MultiFinder—which lets you open several programs at once—usually need at least 2MB of RAM, twice the memory found in a standard SE, to be used practically. In other words, having seen a Mac II, the Mac SE seems just a bit too confining. But it's still a

pleasure to use. —DAVID HALLERMAN

★ EDITORS' PICK ★

Macintosh II

The Macintosh II is different from previous Macs in that the monitor is separate from the CPU and much larger than the old 9-inch display. My machine, for instance, is equipped with a 13-inch color monitor. The system unit is the general shape and size of an AT-compatible, and it opens up to reveal six expansion slots, internal mounting brackets for two floppies and a hard drive, and sockets for up to 8MB of RAM.

Setting up the Mac II is a simple plug-and-play affair. Hit the keyboard-mounted power switch, and you are rewarded with a pleasant chime chord and the familiar happy Mac-face, which looks Lilliputian in the middle of the big 13-inch screen. In what seems the blink of an eye, the desktop icons are ready. Right away, you have experienced two of the major improvements embodied in Apple's flagship computer: speed and a large screen.

The standard 1MB of RAM supplied with the computer is not enough; you need at least

2MB of RAM to start taking advantage of the way MultiFinder can make the II fly through a day's work or to use programs with full-page graphics.

The internal hard drive plugs into a SCSI port on the system board, leaving external ports free to daisy chain up to six additional input or storage devices such as scanners, CD-ROMs, hard disks, or tape drives. There is no external floppy port, but there are internal mounting provisions for up to two 800K floppy drives.

There are some software compatibility problems, even with such standard programs as *MacPaint*, *MacWrite*, and *Excel*. And loading several complex programs with large data files into MultiFinder can occasionally result in system bombs and freezes. I have found it best to save my work frequently and move carefully between programs, letting the display catch up before switching again.

I find the Mac II the fastest and most versatile personal computer for overall "work processing" (accomplishing the range of tasks involved in a job or profession). It is expensive, but truly state-of-the-art.

—CHARLES H. GAJEWAY

386 MACHINES

Whereas IBM set the pace in the PC, XT, and AT categories, it was Compaq that introduced the first 386 computer and is still considered the standard setter. Based on the Intel 80386 microprocessor, 386 computers are speed demons. The fastest run at 25MHz, undreamed of a few years ago.

Currently, most of the software running on 386s is the same software that runs on PC and AT computers. Like a Ferrari running on low-octane fuel, the real power of the 386 is not being tapped. However, the intensity with which Compaq and IBM are focusing on their 386 entries will certainly hasten both software conversion and new software development.

The key to 80386 processing power is in the chip's ability to process data in 32-bit-wide chunks and to address 16 megabytes of memory. But to take full advantage of the 386, you need a 32-bit expansion board. Most 386 machines use primarily the old AT type of 8- and 16-bit boards, with one or two 32-bit expansion slots for use with the manufacturer's own expansion memory boards.

Because most expansion boards on the market are still of the PC, XT, or AT type (8- or 16-bit)—not to mention the software—no matter how fast the microprocessor wants to process, these boards are going to slow things down. But since the future lies with the 386 and beyond, board makers will not be long in matching the capabilities of their products with new computers.

Many people say they don't need the power of a 386 machine, and that's true. Just remember that people once said they didn't know what they would do with 64K of memory.

AST Premium/386 Model 340

This 20MHz speed demon comes with a high-speed hard drive, but without a monitor or video card. AST sent an EGA monitor with the review unit, but we installed our own video card. There are seven expansion slots, only five of which are available—four with the video card in place. One of the slots is a 32-bit memory slot (a SMART-slot), necessary for taking full advantage of the 80386's 32-bit processing power.

The system allows for memory expansion (via card) up to 13MB. Altogether, the computer is able to handle five half-height drives—two hard drives and three other units, which can be a mix of floppies and tape drives. In short, this is an industrial strength computer.

AST provides three keyboard-selectable operating speeds: full bore (20MHz), AT compatible (8MHz), and PC compatible (4.77MHz). You can also select these with a program called *Speed*, as well as through the ROM setup routine. Another speed option, *Auto Slowdown*, automatically slows processing speed when a floppy drive is accessed, thus accommodating some older software that will not work properly otherwise. The current status is displayed on the front panel, which includes a hard-disk-access light, reset switch, and keyboard lock-out switch.

Like all of AST's new Premium computers, the 386 is a solid (36 pounds), reliable performer. The 40MB hard drive has a respectably fast 28-millisecond access time. Other models come with 90MB, 150MB,

and 320MB hard drives.

The combined fan and disk-drive noise is certainly noticeable, though not bothersome. In a minimum configuration, the machine runs cool, though with added drives and boards, it can be expected to warm up.

At a \$6,295 list price for a one-floppy, 40MB hard-drive unit with neither video card nor monitor, the AST Premium/386 is by no means cheap. Yet it boasts sophisticated design, almost state-of-the-art speed, and solid construction.

—HENRY F. BEECHHOLD

Compaq Deskpro 386/20 Model 130

The Model 130 offers enough computing power to light a small city. With its 130MB hard disk, driven by a 20MHz 80386, this desktop computer is well suited for serious database management and desktop publishing.

Compaq computers are designed from the ground up with the overriding idea that they will beat IBM in every way possible: processing speed, disk-access time, and long-term reliability. Compaq provides for 32-bit memory operation through its own Concurrent Bus Architecture (also called Flex Architecture), which allows data to move at high speed.

Among the special features of the Desk-

pro line is exceptional hard-disk drive access time, averaging under 20 milliseconds. Because disk access is one of the bottlenecks in computing, achieving a low access time is a matter of great importance.

Accompanying the large manual are setup and diagnostic utilities that will make it easy to put the computer system into service. Given a hefty list price, we should expect quality documentation. However, setup and diagnostic software are all you receive with the basic computer.

The keyboard is an enhanced AT model, and has a solid, precise feel. The computer itself—nothing dainty here—weighs over 44 pounds.

One has merely to use the machine for a few minutes to understand why dedicated computer people are always looking for speed. Text, for example, doesn't scroll onto the screen, it simply appears, all in one hunk, instantly. Of course, complex graphics still take time, but far less than you've probably experienced. The hard-disk drive is quiet, and its 130MB capacity seems like a bottomless well.

The Compaq 386s, based on the new 386SX chip, is a less expensive 386 machine that runs at 16MHz. With VGA graphics, and a 40MB hard drive (no monitor) it costs \$5,199.

—HENRY F. BEECHHOLD

EDITOR'S NOTE: As we went to press, Com-

paq introduced the new Deskpro 386/20e. It will replace the 386/20 reviewed here, and will offer a smaller footprint—for about \$2,000 less. We'll preview the 386/20e next month.

★ EDITORS' PICK ★

Dell System 310

The superfast (20MHz and zero wait state) Dell 310 is about the best price/performance deal in the 386 marketplace. Feature for feature, it compares favorably with the Compaq 386/20, but costs less.

Although the System 310 is set up at the factory, you can access the System Setup ROM from the keyboard to check the current status or to match the system configuration to changes in hardware. Dell's *System Analyzer* software is a menu-driven set of diagnostic routines for testing memory, ports, video, keyboard, and disk drives. A detailed manual accompanies the software.

The keyboard, a 101-key enhanced AT type, is better than average with respect to feel. Bootup and hard-drive accesses (averaging 19 milliseconds) are gale force. System noise is about average. The 200-watt power supply comes with a hefty blower you'll have no difficulty hearing, and the computer itself is large, weighing 55 pounds.



386 MACHINES

Company/ Model	System Price	Standard/ System Memory ¹	Floppy- Disk Drives ²	Hard-Disk Drive/ Access Speed	Monitor	Ports Included	Free Expansion Slots	Micro- processor Speed (MHz)	Wait State (Cycles) ³	Software Included	Warranty (Months)
AST Research, Inc. AST Premium/386 Model 340	\$6,885	1MB/13MB	1	40MB/28 ms	Mono	P, 2 S, eEGA	32P, 4 AT, PC	4.77/8/20	0	DOS, GW	12
Compaq Computer Corp. Compaq Deskpro 386 Model 40	\$7,473	1MB/4MB	1	40MB/28 ms	Mono	P, S, VGA	32P, 4 AT, 2 PC	16	0	DOS, GW	12
Compaq Deskpro 386s Model 40	\$5,574	1MB/13MB	1	40MB/28 ms	Mono	P, S, M, VGA	16P, 4 AT	16	1	DOS, GW	12
Dell Computer Corp. Dell System 310	\$4,019	1MB/8MB	1	40MB/28 ms	Mono	P, 2 S, VGA	32P, 5 AT, 2 PC	8/20	0	DOS, GW	12
IBM Corp. IBM PS/2 Model 70-E61	\$6,365	1MB/6MB	1 ⁴	60MB/40 ms	Mono	P, S, M, VGA	3 MCA	16	0	DOS, GW	12
IBM PS/2 Model 80-041	\$7,365	1MB/1MB	1 ⁴	44MB/40ms	Mono	P, S, M, VGA	7 MCA	16	1	DOS, GW	12
Tandy Corp. Tandy 4000	\$4,319	1MB/8MB	1 ⁴	40MB/28 ms	Mono	P, S, EGA	32P, 6 AT	16	0-1	DOS, GW	12
Tandy 4000 LX	\$5,719	2MB/8MB	1 ⁴	40MB/28 ms	Mono	P, S, EGA	32P, 6 AT	20	0	DOS, GW	12

KEY: 32P = 32-bit proprietary slot; 16P = 16-bit proprietary slot; AT = 8/16-bit expansion slot; eEGA = enhanced EGA (also supports monochrome graphics); GW = GW-BASIC; M = mouse/pointing device port; MCA = MicroChannel Architecture slot; Mono = monochrome; ms = millisecond; P = parallel port; PC = 8-bit expansion slot; S = serial port; VGA = Video Graphics Array.

FOOTNOTES: ¹ Memory that comes with the basic system and maximum amount of memory that can be added without using an expansion slot; ² 1.2MB 5.25-inch floppy-disk drive, except where noted; ³ A wait state is a delay in the machine's processing cycle. For instance, zero wait state means the processor doesn't have to wait and can gain access to data as fast as needed; ⁴ 1.44MB 3.5-inch floppy-disk drive.

The VGA display, in either 16 shades of gray or full color depending on your monitor, is acceptably sharp across the entire viewing area, and the colors are pure and well saturated. Resolutions as great as 800 by 600 dots and displays as wide as 132 columns are possible.

Dell's customer service is probably as good as any in the industry. In addition to the one-year warranty (with on-site service from Honeywell-Bull), Dell offers a 30-day full-refund guarantee if you don't like the computer. A Customer Technical Support representative will probably solve any prob-

lems you might have, and it's good to know that there is a staff of knowledgeable people waiting to help. In sum, I'd judge this computer to be an outstanding buy.

—HENRY F. BEECHHOLD

Tandy 4000

Stacked up against some of the newer 386 machines, the Tandy 4000, running at 16MHz, seems like a pokey tortoise. On the other hand, the Tandy 4000 costs somewhat less than most top performers.

One of the best things about the 4000, as with many Tandy machines, is the variety of

storage options available. You can use either 720K or 1.44MB 3.5-inch drives; 360K or 1.2MB 5.25-inch drives; and hard-disk drives ranging from 20MB to 344MB. Some of the hard drives use a high-speed SCSI interface, with access speeds as low as 19 milliseconds.

The 4000's keyboard is adequate, but doesn't have the sharp feel that I like. The standard screen display is acceptable, but in this day and age of graphics, it probably makes sense to upgrade to a VGA card and monitor. The newer Tandy 4000 LX runs at 20MHz.

—STEPHEN MILLER

PC/XT COMPATIBLES

The IBM PC was introduced in 1981, so it's an old design. However, it's a sturdy and reliable one. PC and XT class computers (there's no distinction between the two nowadays) are adequate for a wide range of tasks, especially with today's standard 20MB hard-disk drive. But since they are relatively slow at sorting through a large database, recalculating large spreadsheets, or any kind of graphics, these tasks are best done with an AT or 386 machine. Basic word processing is well suited to a PC, but desktop publishing is not. In addition, PC and XT computers will not run OS/2, so they are not a bridge to the future.

Epson Equity I+

With a clock speed of 10MHz, the Equity I+ is one of the fastest computers in its class. It's a new version of the original Equity I, with the following important improvements: 640K RAM instead of 256K; a 4.77/10MHz clock speed; an enhanced AT-style keyboard with the function keys located at the top instead of at the left-hand side; and a separate cursor keypad.

The Epson keyboard has an excellent

touch and is one of the few keyboards I find comfortable. The keyboard connector and power switch are on the front panel, behind protective coverings. In the PC field, you can't go wrong with the Equity I+.

—STEVEN C. M. CHEN

IBM PS/2 Model 30

The PS/2 Model 30 is faster than the original PC/XT line, has a more colorful screen display, and uses the increasingly popular 3.5-inch disk drive. And it is made by IBM, which has had troubles in the marketplace of late but is still far and away the biggest seller. Its three expansion slots accept traditional PC and XT expansion cards.

However, it's not a true PS/2 computer since it doesn't include VGA graphics, MCA architecture, and won't run the new OS/2 operating system. No other computers except its sibling Model 25 use a similar screen display.

—NICK SULLIVAN

★ EDITORS' PICK ★

Leading Edge Model D

The Leading Edge Model D has been on

the market since 1985 and has always been a good deal. It's extremely reliable and is generally considered to have one of the best keyboards around. The D is adequately fast (7.16MHz) and has a good, clear screen display. Leading Edge's 20-month warranty is one of the longest in the industry, and the company honors it faithfully. However, getting through on the Customer Support lines can take a long time.

—NICK SULLIVAN

Tandy 1000 SL

(This report is based on press materials and briefings; it is not a hands-on review.)

This new model in the long-running 1000 line has many bells and whistles, but perhaps the key improvements are a standard 101-key keyboard with separate numeric keypad and a better feel, and five 10-inch expansion-board slots. Previous keyboards were non-standard. The SL has MS-DOS 3.3 in ROM, which means that startup and many common DOS operations are lightning fast. Also in ROM is an 80,000-word spelling checker that can be used with any application written under the *DeskMate* interface, the graphics-oriented interface the user sees when turning



Tandy 1000 TL



Epson Equity 1+



IBM PS/2 Model 30



Vendex Turbo 888-XT



Tandy 1000 SL



Leading Edge Model D

PC/XT COMPATIBLES

Company Model	System Price	Standard/ System Memory ¹	Floppy-Disk Drives		Monitor	Audio	Mouse	Parallel	Serial	Video	Free Expansion Slots	Micro-processor Speed (MHz)	Software Included	Warranty (months)
			5.25-inch	3.5-inch										
Epson America, Inc. Epson Equity I Plus	\$1,597	640KB/640KB	2		Mono	N	N	Y	Y	CGA	3	4.77/10	DOS, GW	12
IBM Corp. IBM PS/2 Model 30-002	\$2,065	640KB/640KB		2	Mono	Y	Y	Y	Y	MCGA	3	8	DOS, BASIC	12
Leading Edge Leading Edge Model D	\$995	512KB/768KB	2		Mono	N	N	Y	Y	MG/CGA	4	4.77/7.16	DOS, GW, LE WP	20
Tandy Corp. Tandy 1000 HX	\$1,019	256KB/640KB		2	Mono	N	N	Y	Y	MG/CGA	1	4.77/7.16	DOS, GW, DeskMate	3
Tandy 1000 SL	\$1,219	384KB/640KB	2		Mono	Y	N	Y	Y	MG/CGA	5	4/8	DOS, GW, DeskMate	3
Tandy 1000 TL ²	\$1,619	640KB/768KB		2	Mono	Y	N	Y	Y	MG/CGA	4	4/8	DOS, GW, DeskMate	3
Vendex Technologies, Inc. HeadStart Turbo 888-XT	\$995	512KB/768KB	2		Mono	Y	Y	Y	Y	MG/CGA	7	4.77/8	DOS, GW ³	12

KEY: CGA = Color Graphics Adapter; GW = GW-BASIC; LE WP = Leading Edge Word Processor; M = mouse/pointing device port (for the IBM Personal System/2); MCGA = Multi-Color Graphics Array; MG = Monochrome Graphics (Hercules compatible); Mono = monochrome; P = parallel port; PC = 8-bit expansion slot; S = serial port.

FOOTNOTES: ¹ Memory that comes with the basic system and maximum amount of memory that can be added to the motherboard without using an expansion slot; ² Has 80286 microprocessor; ³ Also includes database, spreadsheet, and word processor.

on the computer. *DeskMate 3.0*, the integrated package that's included with the computer, offers 10 new or spruced-up programs. One 5.25-inch drive is standard, but another floppy drive can be added, as well as a 20MB or 40MB hard-disk card. Finally, the SL introduces advanced audio input and output technology that allows you to record, store, and play back speech and sound through the computer.

—NICK SULLIVAN

Tandy 1000 TL

(This report is based on press materials and briefings; it is not a hands-on review.)

The 1000 TL is the best performer in the 1000 line. To start, the TL has many of the same features as the SL—audio input-output, DOS 3.3 and *DeskMate* in ROM, a standard keyboard and expansion slots, and a more colorful display. But it also uses an 80286

microprocessor, which gives high-speed performance commonly found in AT-class machines. It comes with a 3.5-inch disk drive; a second 3.5-inch drive and a 5.25-inch drive can be added. (When comparing advertised prices note that Tandy machines come with only one drive.) As on the SL, the keyboard is detached from the system unit. Disappointing, however, is the lack of a mouse port, especially since Tandy encourages use of a mouse with its *DeskMate* interface.

—NICK SULLIVAN

★ EDITORS' PICK ★

Vendex Turbo 888-XT

The Vendex Turbo is made by Korea's Samsung Electronics Corp., a company probably best known in this country for its computer monitors and home electronics

products. It's a solid computer with a relatively small footprint, a decent screen display, and a good keyboard. The included startup software makes the Vendex quite a good deal, especially for newcomers without a software library. Vendex offers a toll-free telephone technical assistance and will send a technician (for \$50) to your house to help set up the system.

—NICK SULLIVAN

MANUFACTURERS' INFORMATION

Apple Computer, Inc. (408) 996-1010; AST Research, Inc. (714) 863-1333; Compaq Computer Corp. (713) 370-0670; Dell Computer Corp. (512) 338-4400; Epson America, Inc. (800) 922-8911; IBM Corp. (800) IBM-2468; Kaypro Corp. (619) 481-4300; Leading Edge Hardware Products, Inc. (617) 828-8150; NEC Information Systems (617) 264-8000; Tandy Corp. (817) 390-3700; Vendex Technologies Inc. (516) 482-4255; Zenith Data Systems (312) 699-4800.

IBM PS/2

While the IBM PS/2 Models 50, 50 Z, 60, 70, and 80 use the same microprocessors as other MS-DOS computers (Intel 80286 and 80386), they also include VGA graphics and MicroChannel Architecture (MCA). With MS-DOS computers, add-on boards can provide high-resolution VGA graphics in both monochrome and color (up to 256 colors at once); but VGA graphics are built into the PS/2 line. And MCA, a part of the PS/2 system, cannot be added to an MS-DOS computer. All PS/2 computers use 3.5-inch disk drives and include a port for a "pointing

device" (IBM-speak for a mouse.)

MCA is a system for connecting expansion cards, such as additional memory and modems, to the computer. IBM says that MCA will provide more speed and better connectivity between computers and allow for the use of multiple processors. None of the boards released so far fulfill this promise.

Nonetheless, since IBM is such a standard-setter in the industry, Tandy (with the Tandy 5000 MC) and others have announced computers that use the MCA expansion-board system.

IBM PS/2 Model 50Z

(This report is based on press materials and briefings; it is not a hands-on review.)

The Model 50 Z is an improved version of the Model 50, which was criticized for being too slow and not having large enough hard-disk drives. The "Z" stands for zero wait states, a feature that makes the computer 35 percent faster than the 50, according to IBM. (A wait state is a delay in the machine's information processing cycle caused by a difference in speed between a faster processor and slower memory, which holds data). However, at 10MHz, the Model 50 Z is still not nearly as fast a machine as many others on the market. The 50 Z can be used with either a 30MB or 60MB hard-disk drive, with access times of 39 and 27 milliseconds, respectively, compared to a tortoise-like 80 milliseconds on the Model 50. Users who buy the 30MB drive can later upgrade to the 60MB drive themselves. The 50 Z has three expansion slots, all of which take only MicroChannel boards.

—NICK SULLIVAN

IBM PS/2 Model 70

(This report is based on press materials and briefings; it is not a hands-on review.)

The Model 70 is IBM's first desktop 386 computer. The PS/2 Model 80, also a 386 machine, is a cumbersome tower of equipment that stands on the floor. The Model 70 also sets new speed records for IBM desktop computers and indicates that IBM is trying to match Compaq move for move.

There are three versions of the Model 70: a 25MHz model with a 120MB hard-disk drive (\$11,295); a 20MHz model with a 120MB hard-disk drive (\$7,995); and a 16MHz machine with a 60MB hard-disk drive (\$5,995). The Model 70 386 has three expansion slots, all of which take only MicroChannel boards.

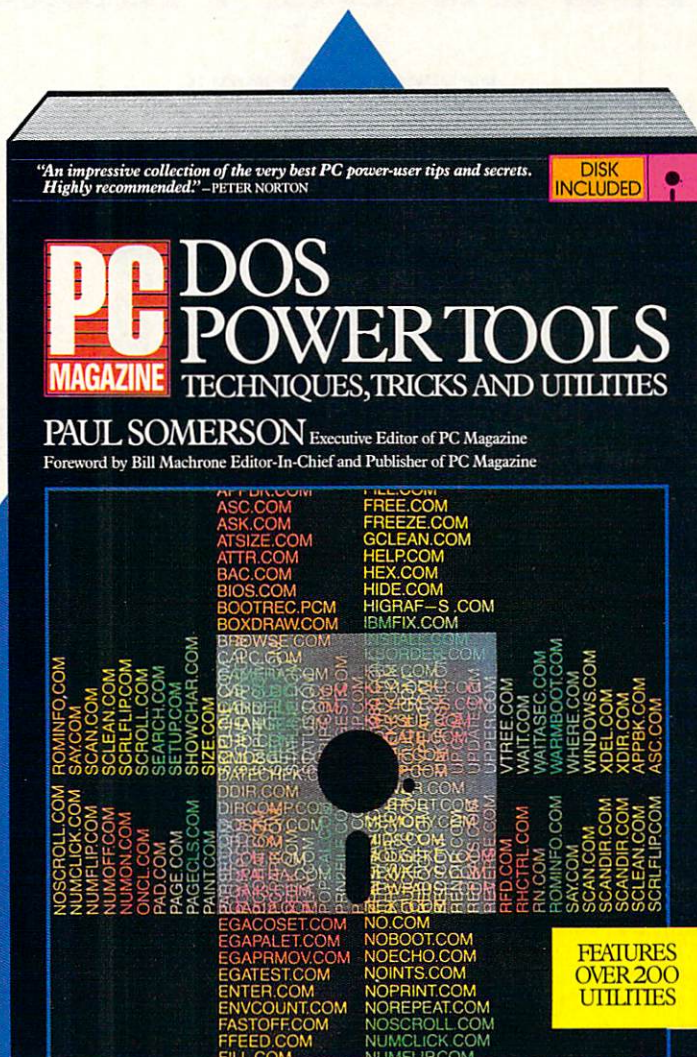
—NICK SULLIVAN ■



IBM PS/2 Model 50Z

IBM PS/2 Model 70

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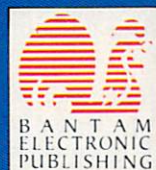
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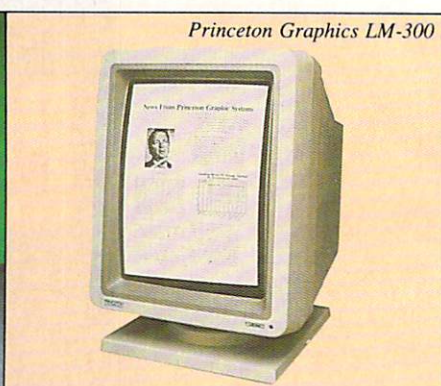
This month, we inaugurate Hardware Mini-guides as a regular feature. What's a mini-guide? Essentially, it's a condensed buyer's guide. Turn here for reviews of some of the latest products, a chart comparing their features, and advice on what to look for when shopping. Our regular buyer's guides will continue to cover a wide selection of products and include more in-depth information about a given category (copiers, for example) to help you choose one that's right for you.

We are witnessing the birth of a new generation of monitors designed especially for desktop publishing and computer-aided design (CAD). Although "super-high-resolution monochrome" is the correct name, these expensive beauties have also earned the moniker "paper-white" because they display black text on a white background rather than the green- or amber-on-black text of most monochrome monitors. They allow you to examine and manipulate an entire printed page (sometimes two) on your computer screen, right down to the last detail. If you need to do the fine-line work required to put together a publication or construct detailed designs, not only are these monitors the displays of choice, but they far outperform anything short of an industrial-quality machine.

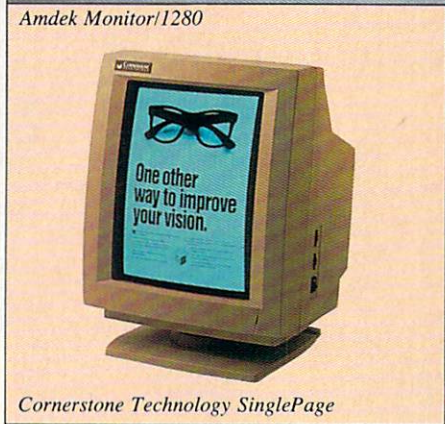
When choosing a display, start by looking at resolution. The term covers several measurements. In essence, resolution refers to the amount of video information that a screen



Amdek Monitor 1280



Princeton Graphics LM-300



Cornerstone Technology SinglePage



Taxan Crystal View

REVIEWED IN THIS ISSUE:

Monitors:

Amdek Monitor 1280
Cornerstone Technology SinglePage
Princeton Graphics LM-300
Taxan Crystal View

Printer: Epson LQ-500

Word Processor: Smith Corona Personal
Word Processor 6BL

Phone: Panasonic Cordlessphone Model
KX-T3000

Next month, watch for a miniguide to tape backup systems, and in January, a typewriter miniguide.

can display, measured in pixels, or dots.

To get some idea of the picture quality of a full-page system, consider that a typical low-cost RGB monitor hooked up to a color graphics adapter (CGA) board has a pixel resolution of 640-by-200 or 128,000 pixels per screen page. The monitor built into the Macintosh SE displays 512-by-342 pixels, for a total of 175,104. The Princeton Graphics LM-300 monitor (a full-page), on the other hand, boasts 1,200-by-1,664 pixels—nearly 2,000,000! And even the lower-priced full-page monitors will display over 1,000,000 pixels—far in excess of CGA. With resolution nearly as crisp as that of a good photograph, any longing for color will soon fade.

But before you toss out your old monitor, you should know that although several of these full-page displays can be used as the only monitor in your system, most are meant

to serve as auxiliary—special application—displays. Which leads us to another important topic: video cards. Special circuitry cards (supplied as part of the overall cost) are required for these monitors to function properly. (Large-screen monitors designed specifically for Macintosh, which generally come with your choice of a Mac SE or a Mac II video card, are not reviewed in this miniguide.) While a growing number of boards will support one or more of the common display modes (such as CGA or MDA), projecting, for example, the display of your favorite database to fill the jumbo-size screen, the majority of these boards will support only the display that they come with. A high-powered video board cannot interface with a low-frequency monitor because the monitor can't keep up with what the board is transmitting. Conversely, a low-powered board—CGA, for example—cannot provide

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enough information to properly drive a high-frequency monitor. So if you plan on using two monitors, you will have to give up two expansion slots, and if you plan to use a full-page monitor exclusively, you'll certainly want the flexibility of a video board capable of handling more than one display mode.

In addition to resolution, you must also consider the screen size and orientation you want. A screen measuring 15 inches along the diagonal is probably the most practical for a mix of graphics and text applications. As for orientation, you must decide whether you'll be working mostly with a portrait (vertical) or a landscape (horizontal) layout; you can choose one or the other, but not both.

Software drivers provided with these monitors serve as an interface between the video board and the software you intend to use. *AutoCAD*, *GEM*, *Microsoft Windows*, *Ventura Publisher*, *Aldus PageMaker*, *Lotus 1-2-3*, *WordPerfect*, and *WordStar* are the drivers most widely furnished, and customized drivers for other programs are available from some of the monitor manufacturers.

Unfortunately, new technology does not come cheap; these monitors range in price from about \$1,000 to \$3,000. But for graphics-intensive applications requiring a full-page display and super-sharp, super-fine detail, there's no substitute.

In summary, consider these factors when choosing a monitor:

- resolution (the higher, the better)
- display size and orientation (what's best varies by application)
- use as primary or secondary monitor (take into consideration your available expansion slots)
- software applications (be sure drivers for the programs you want to run are included in the package or easily available)
- price (relates to screen size and display quality desired).

Amdek Monitor/1280

Image quality doesn't come cheaply. But Amdek has managed to keep the price of its Monitor/1280 and video card under \$1,000, making it one of the least expensive ways to add state-of-the-art desktop-publishing power to your computer system.

Amdek uses a slow-decay phosphor, which makes any screen image fade out slowly. This reduces (but doesn't eliminate) the jittery picture common to super-high-resolution monitors, but it also causes a brief smearing when there is any movement on the screen. These are only minor annoyances, however.

In its high-resolution mode (1,280-by-800), the Amdek can put as many as 160 columns by 50 lines of text on the screen at once. The monitor also offers two of the modes commonly used by CGA displays—320-by-200 in four colors and 640-by-200 in two colors—displaying the colors as shades of gray. This means that you can use most (but not all) of your CGA software on this monitor.

The power switch and cable connectors are located at the back of the base of the tilt/swivel stand. The only control other than the power switch is a thumbwheel for setting brightness, mounted unobtrusively at the lower right corner of the casing. There is no way to make other adjustments without opening the enclosure, which Amdek *strongly* discourages.

Unlike other high-resolution monitors, which are so heavy that they must stand alone, the monitor weighs only 25 pounds—light enough to rest atop most computers. Its stylish, sturdy-looking enclosure makes it an attractive addition to your workspace.

Only one slot is required for the included full-length piggy-backed video card, but the double thickness means that the card nestles snugly against the card on the right (as

viewed from the front). There are only two jumper connectors on the board (no DIP switches!!) and, in most cases, the factory settings will serve (users with a second monitor will need to change these). In all likelihood, you will only have to pull out your old video card and plug in this new one.

Although Amdek supplies the drivers needed for ultra-high-resolution graphics only for *GEM*, *Lotus 1-2-3*, and *Microsoft Windows*, a large number of software companies support the Amdek system. In fact, nearly every major graphics-oriented program on the market will run on the Amdek 1280, including *AutoCAD*, *VersaCAD*, *Ventura Publisher*, *PageMaker*, *Javelin*, *WordStar Professional*, *PC Paintbrush*, and *Windows DRAW*!

The Amdek Monitor/1280 is surely a bargain, given the price of most comparable monitors these days; and it's backed by a one-year limited warranty.

—HENRY F. BEECHHOLD

CIRCLE READER SERVICE 101

Cornerstone Technology SinglePage

At \$999, the SinglePage display system (monitor and interface card) competes aggressively in what is rapidly becoming a crowded field.

Like other display systems of its type, the SinglePage is ideally suited for desktop publishing and CAD applications. Unlike some full-page monitors, the Single Page can act as a more-or-less normal monochrome monitor, defaulting to Hercules compatibility when you don't install a special software driver. I say "more-or-less" because a standard 25-line image displayed on a full-page, vertically-oriented screen ends up looking vertically stretched, which some users may find distracting.

Setup is simple: you just set the single jumper on the interface card according to

SIDE-BY-SIDE COMPARISON OF FOUR FULL-PAGE MONITORS

Model	Amdek Monitor/1280 ¹	Cornerstone Single Page	Princeton Graphics LM-300	Taxan Crystal View
Manufacturer	Amdek Corp. 1901 Zanker Rd. San Jose, CA 95112 (408) 436-8570	Cornerstone Technology 1883 Ringwood Ave. San Jose, CA 95131 (408) 279-1600	Princeton Graphic Systems 601 Ewing Street, Building A Princeton, NJ 08540 (609) 683-1660	Taxan USA Corp. 18005 Cortney Court City of Industry, CA 91748 (800) 544-3888
Price	\$995	\$999	\$839 for monitor, \$750 for card with 5MB of memory or \$1,150 with 1MB of memory	\$2,195
Rating	★★★	★★★	★★	★★
Screen Size (diagonal)	13.5 inches	15 inches	13.5 inches	19 inches
Monitor Dimensions	14.4-by-13.6-by-11.9 inches	12.7-by-16.5-by-13.7 inches	12-by-16.5-by-13.5 inches	18.9-by-17.5-by-16.1 inches
Single/Double Page	Single	Single	Single	Single or Double
Orientation	Landscape	Portrait	Portrait	Landscape
Maximum Resolution	1280 x 800	768 x 1008	1200 x 1664	1280 x 960
Card Size	13.4-by-4 inches, double width	13.4-by-4.5 inches, single width	13.4-by-4 inches, single width	13.4-by-4 inches, single width
Hardware Requirements	IBM PC/XT/AT	IBM PC/XT/AT	IBM PC/XT/AT	IBM PC/XT/AT
Software Drivers Included	AutoCAD, GEM, Lotus 1-2-3, Windows	AutoCAD, GEM, Lotus 1-2-3, PageMaker, Ventura Publisher, Windows, WordPerfect, Wordstar	GEM, PageMaker, Ventura Publisher, Windows, WordPerfect, Wordstar Professional	AutoCAD, GEM, Windows
Additional Video Modes Supported	CGA	Hercules	None	CGA

¹ Also available as the Wyse WY-700 from Wyse Technology, 3571 N. First St., San Jose, CA 95134, (408) 433-1000.

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whether you'll be using the SinglePage as your primary or secondary monitor. If you were to use the monitor simply as a replacement for your present one, then all you'd need to do is run a cable from the monitor to the board and boot up your system in the normal fashion.

But, of course, you don't buy a display system like this as a replacement for an ordinary monitor. So Cornerstone provides you with five disks of software: diagnostics, video drivers, and "True Fonts." The fonts, customized for *GEM* and *Ventura Publisher*, give you an accurate screen representation of the fonts as they would be printed.

The only controls accessible externally are the power switch and the contrast and brightness adjustments, all mounted on the right side of the enclosure. The monitor—a simple design—comes with a tilt/swivel stand.

Image quality is good, with only the slightest distortion at the edges of the picture in the Hercules mode. Some might find this disturbing; if you think you might use the Hercules mode frequently, it's worth taking a look before you buy. Text and graphics look bright and sharp; and the images are free of the jitter seen in some similar monitors. The resolution of this monitor is not the highest available, but in order to get appreciably better image quality, you have to spend a lot more money.

At \$999 (or \$1,125 for the GS, or four-level gray-scale, model), the Cornerstone SinglePage display system is a good value. Cornerstone provides after-sale support via a toll-free technical support line.

—HENRY F. BEECHHOLD

CIRCLE READER SERVICE 102

Princeton Graphic LM-300 Monitor

Princeton Graphics has been producing monitors for a long time, and its products always warrant serious consideration.

The display area of the LM-300 measures 8.5-by-11 inches, exactly matching a conventional printed page. After working with the typical partial page you see on an ordinary monitor, you'll find the sheet-of-paper appearance strange at first, but you'll soon wonder why all monitors weren't made this way from the beginning.

Because the screen does not have a matte finish, it sharply reflects ambient light. However, if you have overhead lighting, tilting the monitor down slightly on its tilt/swivel base helps a great deal, and then you can see that the image quality is outstanding. Graphics and text have a print-like quality, with no evident distortion.

Power, brightness, and contrast are the only external controls. The interface cable uses a 9-pin connector (DB-9) but it *cannot* be used with any card other than the supplied LaserPage video adapter, despite the misleading information to the contrary on the

card accompanying the monitor. The card is available with either 0.5MB (\$750) or 1MB (\$1,150) of video RAM. The 1MB version will produce a display equal to that of a laser printer's running at 300 dpi.

The LaserPage video board is not really designed to act as a primary video adapter, unless all of your applications are running under, say, *Windows*. The LM-300/LaserPage combination is a special purpose system designed to be used with properly configured software, for which such a monitor is an advantage.

The manual accompanying the LaserPage software is a disgrace—more so because this product sells for \$839 plus the cost of the card. It is 16 photocopied pages of confusion. On the plus side, the actual software configuration process is simply a matter of running several batch files. But if you're looking for helpful information about the software and the LaserPage board, forget it.

Once you've got the LM-300 working with *Windows*, for example, you will be impressed by what you see. Adjectives like crisp, bright, and sharp come to mind. If you stand back, you're likely to think that someone stuck a magazine page over the screen.

These days, spending over \$1,500 on a monochrome monitor may seem prodigal, and so it would be if you had no absolute need for a monitor like the LM-300. But for anyone developing a desktop-publishing business, this monitor makes sense, for it truly displays what you will get when you print your text/graphics pages, and its display quality is first rate.

—HENRY F. BEECHHOLD

CIRCLE READER SERVICE 103

Taxan Crystal View

One morning I was preparing page layouts on my AT compatible the way I've been doing it for months: Set up the basic page format, import a text file, zoom in to make text changes and add graphics files, zoom in still further to place boxes, rules, and graphic elements, zoom out to see how it's all coming together, and so on. Zoom, zoom, zoom. All in all, I spent perhaps half my time zooming and scrolling across a page.

Then a truck pulled up and dropped off a big brown box with the Taxan Crystal View. And I do mean big—this monitor's screen measures 19 inches diagonally and dwarfs the computer it sits on.

By that evening my zoom-and-scroll blues were gone. Suddenly I could see an entire 8-by-10 page on-screen at once. In fact, I could see two full facing pages at once if I wanted, though I found the single-page display more practical. I could now concentrate on making changes and adjustments, instead of wasting time moving to the part of the page that needed fixing.

The Taxan is a strong performer in both

sharpness and speed. The image is extremely crisp, with no ghosting around the edges of characters. The display is also free of visible flicker, a flaw often found on large monitors. The page-white background is just slightly blue, but not unpleasantly so. When sitting nose-to-display and looking for flaws, I found a slight shift to the right along the bottom two inches of the monitor, but under normal working conditions it was hardly noticeable.

The Taxan showed admirable speed in redrawing the screen after changes were made in a page layout. This is a significant challenge to other large-screen monitor manufacturers.

This monitor really shines when used with the special high-resolution-screen driver software provided. To maintain compatibility with other software, though, the Taxan will emulate CGA graphics modes, substituting gray patterns for colors and lowering resolution to 1280-by-800. I had no problems getting off-the-shelf programs to run in this CGA mode, though the gray tones used often provided less visual contrast than the colors originally intended by the programmers.

The Crystal View was moderately difficult to install. The instructions are not a masterpiece of clarity by any means, and I had to reread the sections on installing *Windows* drivers and setting switches on the interface card several times, paging back and forth through the manual. After a few hours, though, it was up and running, and the results were certainly worth the effort.

User controls are minimal: You can adjust the brightness of the image, and that's about it, but that was enough to produce a clear picture. The really important control device is the built-in tilt/swivel base that allows you to move the monitor easily to an angle that suits you. This was critical since the highly polished screen surface tends to create glare, and I found it necessary to adjust the screen position during the day to compensate for the changing light coming in through my office windows.

The biggest problem, frankly, was putting the evaluation unit back in its big brown box and sending it back to the manufacturer. The \$2,000-plus price tag is competitive with other models in this class, and serious desktop publishers may well be able to justify the expense based on the indisputable time savings you get as a return on your investment. My business budget couldn't take the strain, though working with full-layout pages for a few weeks has certainly spoiled me. When I put my perfectly adequate 13-inch monitor back in its spot on top of the computer, it took several days to get over the uncomfortable feeling that I was looking through the wrong end of a telescope.

—STEVE MORGENSTERN

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CIRCLE READER SERVICE 52

Big Names Deliver High Quality at Low Cost

About Our Reviews and Ratings

Each month, HOME-OFFICE COMPUTING's Hardware Reviews department takes an in-depth look at new and worthwhile computers, peripherals, fax machines, copiers, phones, and other hardware.

Our reviewers set up the equipment in their own home offices. After heavy use and extensive testing, they rank each item on the basis of suitability for the home office and on overall value, taking into account performance, features, ease of setup, ease of learning and use, documentation, size, expandability/versatility, support, availability, warranty, and value for the money.

Then, the HOME-OFFICE COMPUTING Hardware Testing Lab conducts its own battery of tests (a printer speed test, for example) and verifies manufacturers' specifications. Finally, our technical editors combine the reviewers' rankings, the lab test results, and their own experience and judgment into an overall rating on a scale of zero to four stars:

- Poor
- ★ Average
- ★★ Good
- ★★★ Very Good
- ★★★★ Excellent

Affordable 24-Pin Printing From Epson

Epson LQ-500

Epson America, Inc., 2780 Lomita Blvd., Torrance, CA 90505; (800) 922-8911

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: \$529

HARDWARE REQUIREMENTS: Computer with standard parallel port and cable

TYPE: 24-pin dot matrix

DRAFT SPEED (PICA): 150 cps

NEAR-LETTER-QUALITY SPEED (PICA): 50 cps

GRAPHICS RESOLUTION: 60-by-180 minimum; 360-by-180 maximum

PAPER WIDTH: Continuous form: 4-to-10 inches; Single sheet: 7.2-to-8.5 inches

DIMENSIONS: 5.47-by-15.35-by-12.56 inches

WARRANTY: One year



Anyone using a 9-pin dot-matrix printer who has yet to experience 24-pin printing is in for a treat. You get clearer printouts and sharper, more precise graphics than you would on a 9-pin printer. Even more delightful is that you can get this high-quality, 24-pin Epson LQ-500 printer for \$530—that's \$20 less than the 9-pin dot-matrix IBM Proprinter II. The LQ-500 is Epson's low-end 24-pin dot-matrix printer and is slower than the company's high-end models, but it is one of the lowest-priced 24-pin printers available.

The print quality of the near-letter-quality Roman font is outstanding. The other two of the three built-in fonts (draft and near-letter-quality Sans Serif) are good, but they are not as attractive as the Roman. Font-size options include 10, 12, and 15 characters per inch. Font cartridges containing additional size and style options are available from Epson for \$59. Two slots for these cartridges can be found on the right side of the printer, behind the platen knob.

The three-button control panel handles the selecting of the built-in fonts, the on-line and off-line modes, and the form and line feed. This panel's LEDs indicate the current font and mode. To change the font sizes and the font default settings, you must fiddle with DIP switches, which are located on the rear of the printer, on the right-hand side. They are easily accessible with a pen or pencil.

The LQ-500 accepts single sheets or continuous-form paper. A single-bin cut-sheet feeder is also available for \$99. One feeder mechanism must be removed to use the other, but they are easily interchangeable. The pull-tractor device has plastic mounting

clamps, which, if they're subjected to repeated swapping, may not last forever. Auto-loading of paper in single-sheet mode is a useful feature, but since envelopes are thicker than single sheets of paper, they must be inserted one at a time.

You may find that your software won't support the LQ-500 directly. However, the LQ-500 is compatible with LQ-1500/2500 and LQ-850/1050 printer drivers. *WordPerfect* version 5.0 does support the LQ-500, and that made it easy to test the printer's graphics capabilities. Graphics print quality is very good at the maximum level of 360-by-180 dots per inch, although the solid areas have noticeable marks that are darker than the rest of the area.

Thanks to the well-written and illustrated user's manual, getting the LQ-500 up and running is easy. It comes with only a parallel interface, but a serial interface is a \$59 option (\$129 with an 8K print buffer).

The LQ-500 makes 24-pin print quality affordable for almost anyone. For print quality, the LQ-500 is terrific. If you want more speed and less inconvenience changing feeders, check out Epson's LQ-850 and LQ-1050. For the price, it's hard to go wrong with the LQ-500.

—TIM HAZEN

CIRCLE READER SERVICE 105

Ease Transition From Typewriter to Word Processor

Smith Corona Personal Word Processor 6BL

Smith Corona Corp., 65 Locust Ave., New Canaan, CT 06840; (203) 972-1471

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: \$599

MEMORY: 50,000 characters

DISK STORAGE: 100,000 characters per side, two sides

DISPLAY: 9.5 inches diagonally

PRINT SPEED: 11.5 cps maximum

PAPER WIDTH: 13 inches maximum

FEATURES: 75,000 word Spell-Right dictionary,

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- GEM Paint drawing software
- Locomotive Basic II software
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WARRANTY: One year

Some people would still rather type a letter over and over again on a typewriter than go anywhere near a word processor or a computer. Smith-Corona has just made it harder to stay away.

The Smith Corona Personal Word Processor 6BL (PWP 6) was designed for portability and ease of use. For most people, its familiar typewriter design will ease the transition from a typewriter to a word processor. The PWP 6's memory and word-processing functions will certainly attract those whose needs have outgrown their old typewriter.



This machine is both an electronic typewriter and a word processor; to convert from one function to the other, flip the selection switch on the left side of the keyboard.

In typewriter mode, characters typed on the PWP 6 appear on paper and on the screen. It uses correcting tape to correct single characters, entire words, and even phrases. Simply press the Correct key or WordEraser key, type the misspelled word, and then retype the word correctly. Functions such as spell checking, automatic return and centering, underlining, and decimal tabs are part of the PWP's typewriter as well as its word processor.

Anyone using this machine first as a typewriter will soon be attracted to the word processing functions. The word processing function keys are clearly labeled with words like "MOVE" or "FIND," not cryptic codes. A beginner will be able to use the word processor right away with little or no reference to the owner's manual. Also included with the PWP is a tutorial in the manual which explains step-by-step the functions of the word processor; it provides examples and an exercise for each function.

In addition to basic word processing, such as the ability to delete, move, or copy blocks of text, reformat text, and paginate a file, the PWP also has Word-Right AutoSpell, Spell-Right, and WordFind. As soon as a mistake

is made, Word-Right AutoSpell informs you via a "beep" that you have misspelled a word. The Spell-Right dictionary then provides you with a list of possible words—one of which may be the one intended. The correct word can be automatically inserted into the text. Also, frequently used words, such as proper names, may be added to the 300-word user dictionary. If you like to do all your spell checking at once, turn AutoSpell off and use WordFind to check the entire document.

The memory capacity of the machine is somewhat limited. The machine holds a maximum of 50,000 characters in memory. A disk can store 100,000 characters or 50 double-spaced pages on each side. The PWP 6 uses 3-inch disks that cost \$6.95 for two disks and should be purchased from a Smith-Corona dealer.

The accompanying owner's manual is simple and straightforward in its explanations, and its accompanying diagrams and illustrations clearly explain the typewriter and word processing modes of the PWP.

The machine is about the size and weight of a transportable computer. You can easily move it from one room to another or from your home to an office. When you set it up on a standard desk, the screen is at eye level—but it only displays 14 lines of text at once. And, since the screen covers the keyboard when it's lowered, it must remain up even when you're using the PWP 6 as a typewriter. Other slight drawbacks are the machine-gun-like noise the PWP 6 makes when printing and the lack of an automatic paper feeder; you must insert each new page manually. The Smith Corona Personal Word Processor is a good machine for those who simply wish to write.

—DEBORAH A. MENTON

CIRCLE READER SERVICE 106

Sleek and Stylish Cordless Catches Your Attention

Panasonic Cordlessphone Model KX-T3000

Panasonic Co., One Panasonic Way, Secaucus, NJ 07094; (201) 348-7000

RATING: ★ ★ ★ ★

SUGGESTED RETAIL PRICE: \$170

TYPE: One-line cordless speakerphone

FEATURES: Intercom; two-way paging; 10-number speed dialing; ringer select and tone/pulse switches; flash, hold, mute, and redial buttons; volume control

DIMENSIONS: Base: 2 1/32-by-7 7/8-by-5 5/8 inches

Handset: 4 5/16-by-2 9/32-by-1 inches

WARRANTY: One year

Panasonic combined cordless telephone and speakerphone technology, wrapped it in a small, eye-catching case, and came up with a telephone that is worth serious consideration.

The Cordlessphone KX-T3000 commands your attention as soon as you take it out of the box. It has a black matte finish and a sleek design. The compact base unit has unobtrusive yet clearly visible function indicator lights. The handset fits securely into the base unit, which can be mounted on the wall or placed on a desk. While the handset is in the base unit, it is continually being recharged and will always be ready for use.

The handset is thin and lightweight and has the ability to fold in half. To answer or make a call, all you have to do is press the talk button. Closing the unit automatically hangs up the phone and readies it for incoming calls. This design makes the KX-T3000 a convenient cordless that you can carry with you from room to room in either your hand or pocket.

Some cordless phones make conversations sound as if they were being conducted in a cave. Not the KX-T3000. As long as the phone remains adequately charged, the sound quality is crisp and clear—even when you are several rooms away from the base.

The base unit serves as a speakerphone and an intercom. With the speakerphone, you have your hands free to complete other business while you hold a conversation without losing sound quality. The intercom lets you page someone holding the handset or allows him or her to page you back at the base.



The ring of the KX-T3000 is a soft trill that's not too high pitched. It's easily discernible over background noises.

If you want a phone that performs every task, the Panasonic KX-T3000 won't suit your needs. However, if you are looking for a second phone for your home or office—one that's easy to use, has good sound quality, and is sleek and stylish—then this Panasonic cordless may be for you.

—DEBORAH A. MENTON

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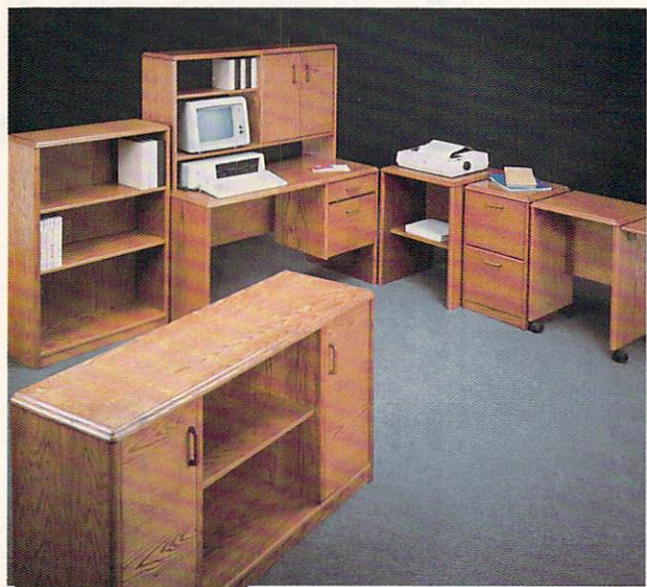
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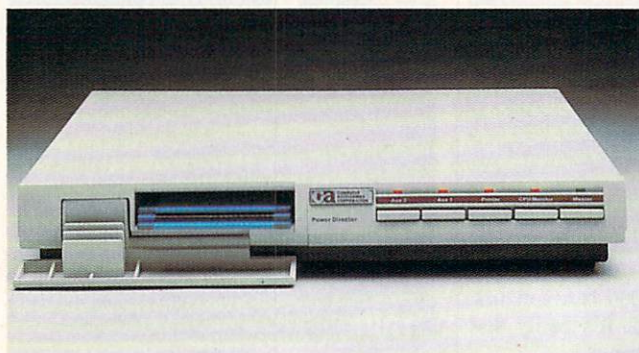
Accessories and Supplies

BY MARIE ALVICH



Furniture Made with the Home Office in Mind. The *American Contemporary Collection* not only includes basic computer furniture (desk, hutch, and

printer stand), but also offers matching accessory furniture (credenza, filing cabinet, bookcase, and typing stand). These seven oak veneer pieces cost between \$170-\$330 per piece. From L & B Wood Corp., 11000 Seymour Ave., Franklin Park, IL 60131; (312) 671-9000. CIRCLE READER SERVICE 108



Power Director. As many computer owners know firsthand, electrical surges can destroy expensive equipment and cause major losses of important data. The *Power Director III* protects against these hazards, while giving you single-location, touch-of-a-button control over all of your peripherals. This convenient, sleek-looking power control center sits under your monitor and provides protection and organization. \$140. From Computer Accessories Corp., 6610 Nancy Ridge Drive, San Diego, CA 92121; (800) 582-2580. CIRCLE READER SERVICE 109

A Rainbow of Disks. Bored with basic black? Put color into your work wardrobe and organize your disk files with Kodak brand *Color Diskettes*. The 5.25-inch, double-sided/double-density disks come in five colors. \$16.30 per 10-pack. From Eastman Kodak Co./Verbatim Corp., 1200 W.T. Harris Blvd., Charlotte, NC 28213; (800) 232-5111.

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Organize Your Business Cards.

Can't find that important client's business card in the pile on your desk? Going on a business trip and need an organized and convenient way to carry clients' cards? Try *Cardfile*, a handy book with clear plastic pockets. Three stylish designs hold 64, 72, or 96 business cards. \$2.75, \$3, \$3.60. From BC Office Products, 101 Quint St., San Francisco, CA 94124; (800) 592-9000.

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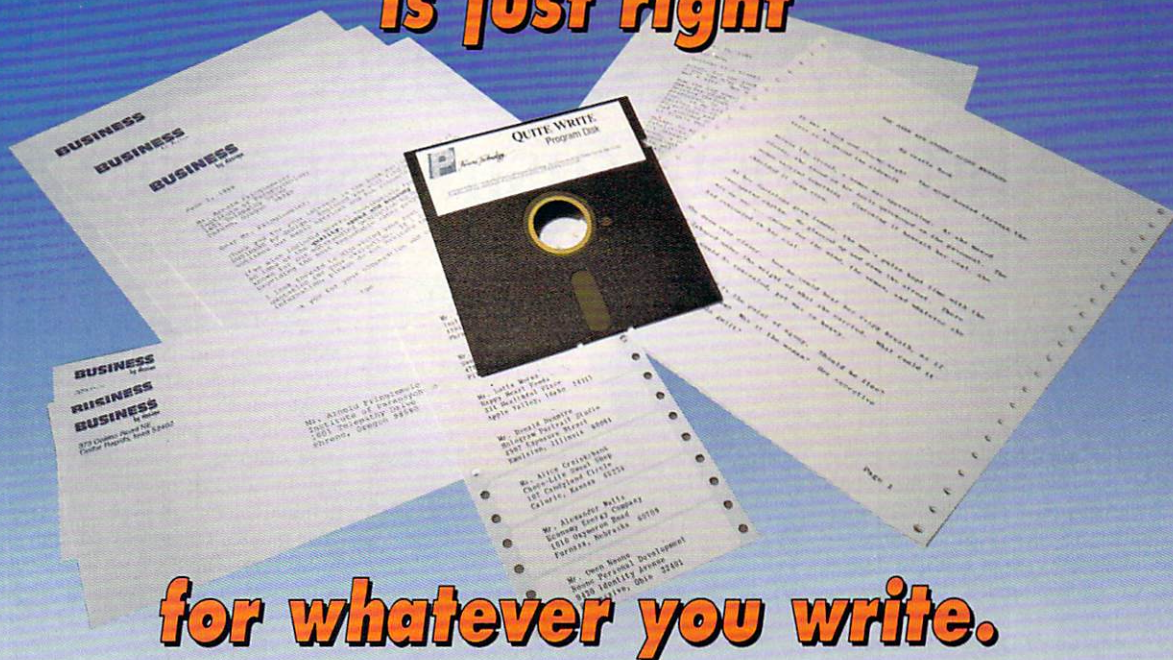
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MARIE ALVICH is associate technical editor for HOME-OFFICE COMPUTING.

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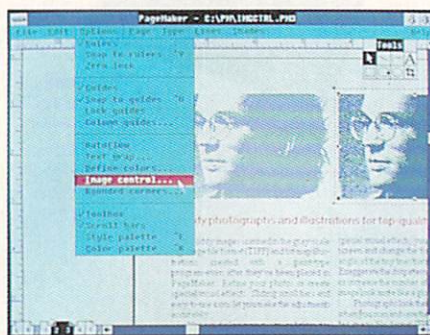
Tools for Desktop Publishers, Writers, Artists, And Other Businesspeople

In-depth Reviews of Applications Software

Our reviews of applications software use shorthand to describe several of the details associated with any package. This is particularly true under "System Requirements"—where the minimum system configuration is noted—so we have provided the following table of computers for you to refer to as needed. The additional hardware, software, or memory listed is required, unless noted as "recommended" or "optional." When more than one computer is listed under "System Requirements," the machine marked with an asterisk (*) is the type on which the software was reviewed. Requirements are not listed where obvious (for instance, printers with word processors or modems with communications programs). Operating system requirements, such as MS-DOS or the Macintosh System file, are listed only when they're not the standard, minimum requirement (DOS 2.0 for IBM PC or compatibles, System 3.2 for the Macintosh, or ProDOS for the Apple II). For those computer systems that can use both 5.25- and 3.5-inch disks (IBM PC and PS/2 or the Apple II), we've listed only those disk sizes that are either normally supplied or available at no extra cost from the publisher. Since most productivity software is not copy protected, we have indicated with the letters "CP" only those programs that are copy protected. The version listed is the version reviewed; publishers may release subsequent versions at any time.

Designation	Models
128K Apple	Ile/IleX/IIGS (in Ile/c mode) and compatibles
128Ke Apple	Ile (enhanced ROM)/IleX/IIGS(in Ile/c mode)
Apple IIGS	IIGS only
IBM PC, PS/2	PC/XT/AT, PS/2 and compatibles
128K Macintosh	128K/512Ke/Plus/SE II
512K Macintosh	512K/512Ke/Plus/SE/II
512Ke Macintosh	512Ke/Plus/SE/II
1MB Macintosh	Plus/SE/II

Ratings Key: ○ Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★ Excellent



Whether running under MS-DOS or on a Macintosh, PageMaker 3.0 offers enhancements—such as adjusting the contrast and brightness of graphics within the program—not found in other desktop-publishing packages.

PageMaker

VERSION REVIEWED: 3.0

SYSTEM REQUIREMENTS: 640K IBM PC* or PS/2; 80286 or 80386 microprocessor; hard-disk drive (20MB recommended); mouse; EGA, VGA, or Hercules; 5.25- and 3.5-inch. 1MB Macintosh*; hard-disk drive; Apple LaserWriter or other PostScript printer; System 4.1 or higher

PUBLISHER: Aldus Corp., 411 First Ave. South, Seattle, WA 98104; (206) 622-5500

PRICE: \$595-\$795

OVERALL PERFORMANCE: ★★ ★

DOCUMENTATION: ★★ ★ ★

ERROR-HANDLING: ★★ ★

EASE OF USE: ★ ★

SUPPORT: ★★ ★

The original release of *PageMaker* was a true breakthrough. It not only allowed users to "set type" on their microcomputers, it also let them combine text and graphics to form complete pages, offered accurate on-screen displays that could be modified as needed, and could print the result on a laser printer or a Linotronic typesetter. This is still one of the most amazing desktop computer capabilities around, and *PageMaker* was a very capable tool for accomplishing the task.

One reason *PageMaker* was so readily understood and widely embraced by the professionals responsible for creating camera-ready pages was its fundamental design:

PageMaker mimics the traditional manual approach to page composition in nearly every respect. Your screen becomes a scrolling desktop with a supply of blank pages. You "rule up the boards," that is, indicate the page margins, column boundaries, and any additional guidelines needed. You place individual blocks of type and graphics with your mouse, column by column and section by section. There's a set of on-screen rulers with sliding markers for measuring the placement of page elements. There are even areas of the desktop where you can keep scraps of type or graphic elements until you need to place them on a page.

But with all that the previous versions of *PageMaker* did well, there was still a problem with its hands-on approach. Substituting a mouse for rubber cement and razor blades was certainly neater and made revisions much easier, but you still had to move each piece of type or graphic into position manually, aligning it with a ruler. If you wanted text to flow around a graphic, that was a manual process as well. Want to change the size of all your subheads? The old *PageMaker* required that you highlight each individual subhead and change its type specifications. In brief, while the page-composition process had been computerized and the traditional approach preserved, it had not been streamlined to save time and effort and provide more precise results than hand labor. Other software publishers took up where Aldus left off and began automating the process. Now, with the release of *PageMaker* 3.0 for both MS-DOS and Macintosh computers (I examined both versions), *PageMaker* fans can combine its comfortable, traditional user interface with most of the automated features offered in competing products.

On top of the list of improvements is the ability to automatically wrap text around graphic images. *PageMaker* 3.0 flows text smoothly around rectangular images and allows you to edit the border of the image to wrap text around irregular shapes.

Equally important is the new automatic text-flow feature. Previous versions of *PageMaker* placed text in a single column at a time. At the bottom of each column, you had to grab the next block of text and move the

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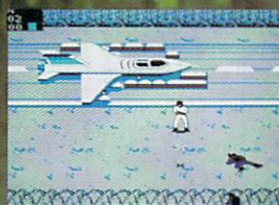
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CIRCLE READER SERVICE 53

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cursor to the top of the next column to continue the story. This was bothersome even for simple newsletter production, and it made *PageMaker* horrendously slow for creating longer publications. Now you have a choice—either do it the old way, or let the automatic text-flow feature pour your entire story into columns, adding pages as needed, until the full text is placed on pages.

Style sheets are the third major upgrade. A style sheet is a compilation of the characteristics of the different kinds of type used in your publication. You can have one style sheet for body text, and others for such portions of the page as headlines, subheads, and captions, each indicating your choice of font and leading, alignment, spacing, and so on. Style sheets make it easy to consistently format your publication, whether it is a complex brochure or a simple memo. More important, they make it a snap to adjust type specifications. If you want to change the typeface of your subheads, for instance, you simply edit the style sheet, and every subhead throughout the publication automatically reflects this change. *PageMaker* 3.0 offers a flexible and powerful implementation of style sheets, one which is particularly attuned to users of Microsoft *Word*. The style sheets of the two programs are compatible, allowing full text formatting in your word-processed document

to carry over to *PageMaker* 3.0.

Another interesting enhancement to *PageMaker* 3.0, one not found in other page-makeup software, is the ability to adjust the contrast and darkness of bit-mapped graphics or scanned images within the program.

These are the basic changes to the program. In other respects, it retains a number of important characteristics found in previous versions. For example, *PageMaker* is not only available on both MS-DOS and Macintosh systems, but it can smoothly exchange files between the two. I created a publication on the Mac, using *MacPaint* graphics and Microsoft *Word* text, then modemed it over to my MS-DOS machine and opened the file. It worked perfectly, with no extra conversion steps and not a hairline rule out of place. The only significant limitation is that object-oriented graphics created with draw-type programs (*MacDraw*, for instance) cannot be transferred between systems.

This compatibility between multiple machines is significant when exchanging files and also when it comes to learning the program; if you can use one version of *PageMaker*, you can use the other after a five-minute glance at the command summary.

PageMaker 3.0 will accept files from just about any word processor or graphics program you can name, plus Lotus 1-2-3 work-

sheets and *dBase* data files—the list is very impressive indeed. And I really appreciate the ability to easily export a text file out of *PageMaker* to my word processor, edit there, then import the file back to *PageMaker* with all its formatting intact.

Purchasers of the MS-DOS version of the program receive a valuable bonus in the *Fontware* system from Bitstream. *Fontware* lets users of Hewlett-Packard LaserJet laser printers and several dot-matrix printers create fonts in a variety of sizes based on type outlines created by Bitstream. The *Fontware* included with *PageMaker* includes three typefaces, and dozens more are available.

Even with all the improvements in this release, Aldus hasn't removed all the items from my *PageMaker* wish list. I would still like to be able to enter more information numerically. With *Ventura Publisher*, for instance, I can size and place text blocks or graphic images precisely by entering measurements in a dialog box—which is not possible with *PageMaker*. *Ventura* also lets me place a box around a text or graphic block and have it expand or contract as I edit the size of the block, a feature which *PageMaker* lacks. Several other programs let you specify custom widths of single or multiple lines. A search-and-replace capability is another feature found elsewhere, but not in *PageMaker*.

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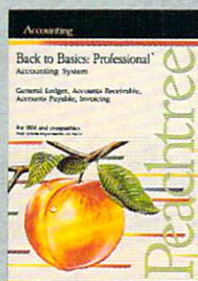
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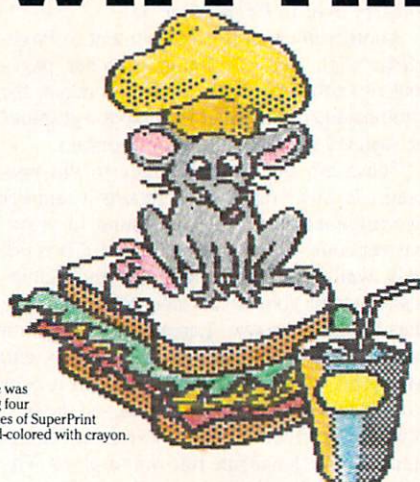
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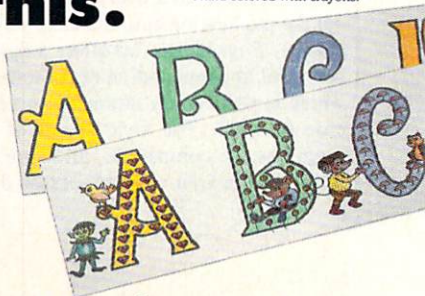
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If you own Print Shop, try SuperPrint. You may never go back to your Print Shop graphics again! But if you still have some graphics you don't want to "give up," simply send us proof of purchase from SuperPrint with a request for a free utility disk (Apple only) that will convert your Print Shop graphics and fonts for use with SuperPrint. Be sure to include your name, address and proof of purchase and send to SCHOLASTIC SOFTWARE, 2931 East McCarty Street, P.O. Box 7502, Jefferson City, MO 65102.



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To order SuperPrint, call toll-free 1-800-541-5513 (in Missouri call 1-800-392-2179), or write to the address above. Available in Apple IIc, IIe, IIGS and MS-DOS.

Scholastic software is also available from your Scholastic Sales Representative and from Authorized Scholastic Education Dealers.

Very simply, you can do much more with SuperPrint.

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Type size and leading specifications are limited to half-point sizes in *PageMaker*; it is convenient to be able to add smaller spacing increments to fill out a column depth. And while the new ability to wrap text around graphics is welcome, it's not as flexible or automatic as the same function in *Quark XPress*, particularly when it comes to circular or irregular shapes.

Finally, I wish the whole thing moved along a little faster. Even on an AT-compatible running at 12MHz, I found performance somewhat sluggish. Not fatally slow, but a bit tiring after a few hours at the keyboard.

The bottom line of *PageMaker 3.0*: Aldus is once again offering a thoroughly modern product, with special appeal in a mixed MS-DOS/Mac environment and to scanned-image users. It's reasonably easy for anyone to use, offers extensive and comprehensible documentation, and will be second nature for those already familiar with the mechanics of page makeup programs.

—STEVE MORGENSTERN

Choice Words

VERSION REVIEWED: 2.0d

SYSTEM REQUIREMENTS: 256K IBM PC or PS/2; two drives (hard-disk drive recommended); 5.25- or 3.5-inch

PUBLISHER: Proximity Technology Inc.,

3511 N.E. 22nd Ave., Fort Lauderdale, FL 33308; (305) 566-3511, (800) 543-3511

PRICE: \$99

OVERALL PERFORMANCE: ★ ★ ★

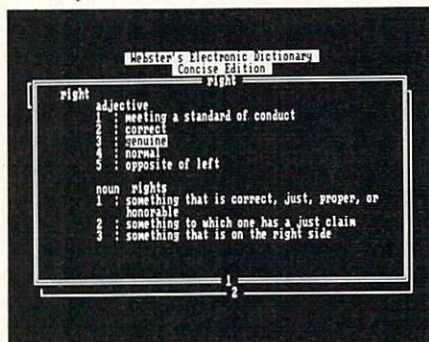
DOCUMENTATION: ★ ★ ★

ERROR-HANDLING: ★ ★ ★ ★

EASE OF USE: ★ ★ ★ ★

SUPPORT: ★ ★ ★

The Webster's Concise Electronic Dictionary and Webster's Electronic Thesaurus that constitute the core of *Choice Words* are based on the reference works developed by Merriam-Webster (formerly G. & C. Merriam), publishers of the "standard of stan-



Choice Words lists 80,000 words in its dictionary and offers 470,000 synonyms for any writer.

dards"—Webster's New Third International Dictionary (reportedly the true descendent of the work of old Noah himself). The dictionary—which includes brief definitions, part-of-speech designations, and syllabification—lists 80,000 words, including common given names, abbreviations, and acronyms (such as "CRT"). The thesaurus lists 40,000 words and provides a total of 470,000 synonyms.

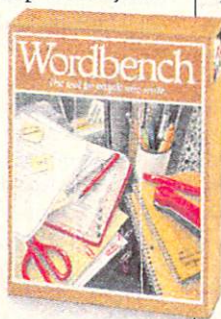
To use *Choice Words*—a memory-resident, "pop-up" program—you must customize it for your system and word processor through the installation and setup routines. From installing the program on your disk drive through defining the keys for calling it up (termed "hot keys"), everything is done through easy-to-understand menus. The manual reproduces and clearly explains each screen. You'd have to make a real effort to mess up. And if you do, it's a simple matter to start over. In the event that you change your hardware or word processor, you can reconfigure the program at will.

Broadly, there are only two applications for *Choice Words*—thesaurus and spelling checker—but you can configure such multiple environments as "Thesaurus for WordStar" or "Dictionary for SideKick." The global default settings—those settings that exist unless you tell the program otherwise—include choices for appearance of word-pro-

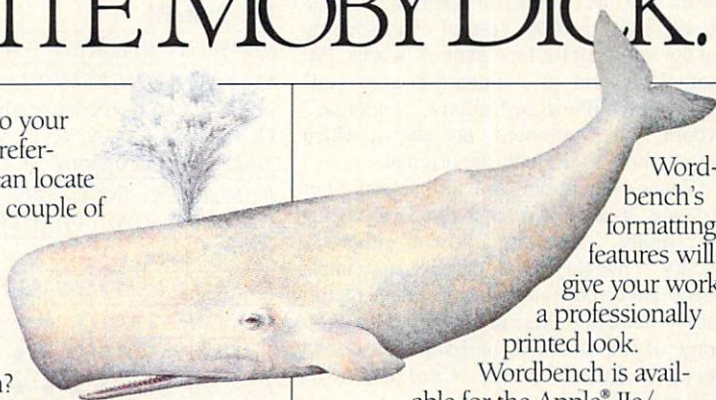
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cessed text (clear or obscured) while using the dictionary or thesaurus. If you have a color monitor, you can fool around with text and highlight color defaults until you find an eye-pleasing setting.

The thesaurus and dictionary setups list 35 word processors—one generic and 34 name brands. If yours isn't on the list, try the generic one, or experiment until you find a name brand that works properly with *Choice Words*.

Once *Choice Words* is loaded, it sits out of sight, awaiting your pleasure, just like any other memory-resident program. You can pop up either the dictionary or the thesaurus from DOS or, more commonly, from within your word processor. Just place the cursor anywhere on a word in your text and press the hot keys—say, SHIFT + (keypad plus) for the thesaurus and SHIFT - (keypad minus) for the dictionary. You can even “cross pop,” that is, refer to one from within the other. Thus, you can look for synonyms in the thesaurus and then look up a selection in the dictionary to check for syllable breaks.

When you've found a suitable replacement for a word in your text, press the Replace hot-key combo, and the new word appears instantly at the location in your text where you stopped to “thumb through” the dictionary or thesaurus. If you press the pop-up hot key on a blank space, *Choice Words* will prompt you to type in the word you want to look up. Should you try to look up either a word not in the references or a misspelled word, *Choice Words* will display a list of words that are similar in spelling. This is usually fruitful in the case of a misspelling but not very helpful for “exotic” words. For example, “ormolu” (imitation gold leaf) leads *Choice Words* to “roomy,” “aroma,” “room,” and “runnel,” not one of which has anything to do with the original.

Choice Words can also be priggish. For instance, it doesn't offer a thesaurus listing for “snotty,” let alone a host of either explicitly “naughty” or proper anatomical words that can be found in any college dictionary—including Merriam-Webster's own. Some of the thesaurus omissions are, however, included in the *Choice Words* dictionary.

In a typical thesaurus display, a separate entry will appear for each distinctive meaning for a word. “Run,” for instance, has 33 entries, each with its package of synonyms. To get into the appropriate synonym group, you highlight the entry and press RETURN. To replace the original word with a synonym, you highlight the word you want and press the Replace hot key. If you merely want to browse, you can do so. To return to your text, just ESCape backwards through the levels of *Choice Words*. To cross pop, highlight a word and press the second application's hot-key combination. A highlighted

synonym will then become a dictionary entry or vice versa.

Some of the supported word processors interact with *Choice Words* in quirky ways. No real problem here if you check the Special Notes section of the *Choice Words* manual. Since my word processor is not supported, I use it with generic. The only hitch I've run into is the need to turn the Insert mode off before trying to replace a word; if you don't, a replacement longer than the original will overwrite text immediately to the right. Odd—you'd think this would happen if Insert were off at the start.

Choice Words is a quick-and-dirty way to grab synonyms and check on definitions. Be warned, however, that a thesaurus—whether paper or electronic—is a dangerous tool for an unskilled writer. Synonyms are often subtly unsuitable substitutes and can make a writer look foolish. So unless you're sure of yourself, don't rely on *Choice Words* or any other such program to do your thinking for you. A truly valuable addition to the *Choice Words* package would be a usage guide. It would be a memory hog, but there are easy ways around this. The dictionary component won't replace a good desk dictionary, but it can be worthwhile.

I find that the thesaurus serves as a good memory jogger. The dictionary is less useful for me, but I like having it on tap anyway. Can you live without *Choice Words*? Sure. But is it worth \$100? Well, I load it every time I load my word processor.

—HENRY F. BEECHOLD

Dr. Halo III

VERSION REVIEWED: 3.0

SYSTEM REQUIREMENTS: 384K IBM PC or PS/2 (512K recommended); two drives; CGA, EGA, VGA, or Hercules; mouse or graphics tablet optional; 5.25- or 3.5-inch

PUBLISHER: IMSI, 1299 Fourth St., San Rafael, CA 94901; (415) 454-7101

PRICE: \$139

OVERALL PERFORMANCE: ★ ★ ★ ★

DOCUMENTATION: ★ ★ ★

ERROR-HANDLING: ★ ★ ★

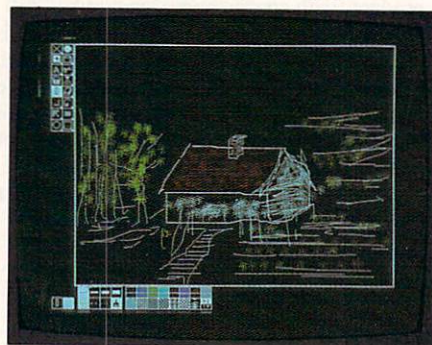
EASE OF USE: ★ ★ ★ ★

SUPPORT: ★ ★ ★

Paint programs turn your monitor screen into a canvas and your cursor into a paint brush. *Dr. Halo III* has extended that traditional concept, adding new features and enhancing many of the old ones. You'll find the usual icon menus, and they're built around a two-button mouse. If you tap the left button, you get the function your cursor is sitting on, such as drawing straight lines. If you use the right button, many of those 16 icons provide you with a secondary menu of icons. This offers a large selection of options while still leaving enough space to paint.

You encounter the first untraditional feature while setting up the program. After the usual questions, *Dr. Halo* asks if you want to display cursor coordinates. This is helpful when you need to place an object in an exact position on-screen or match the relative size of two objects.

Next, the set-up routine asks if you want to use *Dr. Halo III*'s virtual page, which requires additional memory beyond the 228K RAM the program takes up, but lets you work on a canvas up to 8.5 by 11 inches by scrolling around. If you elect this option, you can only edit the portion of the page that is displayed on-screen, but you can view a reduced version of the entire page.



Dr. Halo III: A plethora of features beyond the ordinary.

The main menu consists of 16 icons down the left side of the screen, with a palette of drawing patterns, colors, and line characteristics across the bottom. Almost all menu icons have secondary menus that let you select variations of the main icon. For instance, selecting the spray can allows you to pick from five spray patterns. The printer icon yields several options, including one that lets you select portions of the page to print, another that rotates the image, and a third that scales a large image to fit the whole page. The line icon helps you draw straight horizontal, vertical, or diagonal lines, filled polygons, and curved lines or flexible curved lines.

That last option is unusual. You define the points you want the line to go through, and the program draws a smooth curve for you. By itself, that's convenient, but then you also get an on-screen “handle” that moves along the line to each point you defined, letting you adjust the curve if it doesn't bend exactly the way you want.

Editing capabilities have also been enhanced. You can select a part of your drawing—even an irregularly shaped part—and move, copy, or scale it, and then reposition it. These selected portions can also be saved and used in other drawings. The size of the pixel editing area is variable; you can use this option to make symbols that can be saved or to change the fill patterns in the palette.

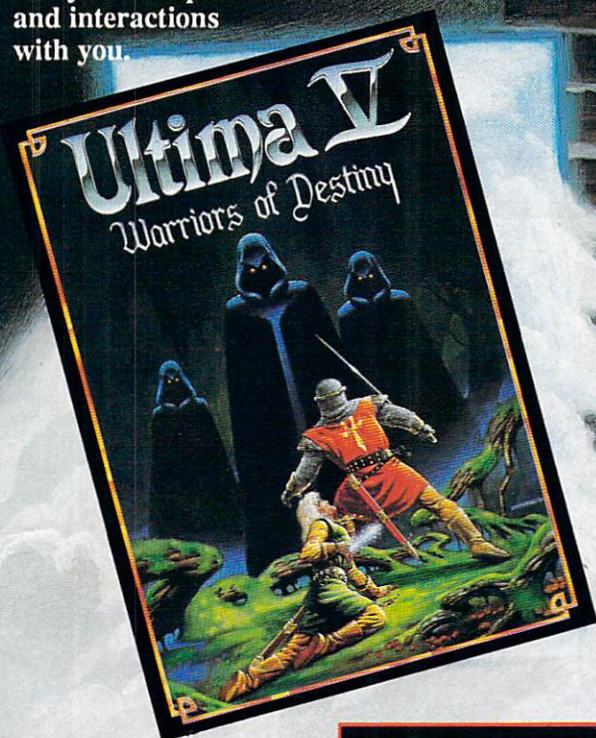
There are several different ways to add

The wait is over... but the excitement has just begun.

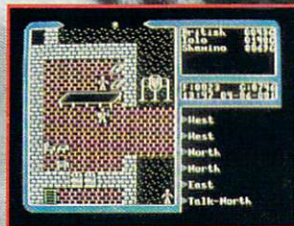
More than two years in the making, Warriors of Destiny sets the new standard for role-playing games. No other game can offer you as beautifully detailed a world or as exciting an adventure. Ultima V is the game for all role-playing gamers: Warriors of Destiny will enchant the novice and challenge the expert.

Highlights of Ultima V

- Powerful new combat and magic systems, increasing in sophistication as your skill increases.
- Over twice the graphic detail, animation and sound effects of earlier games.
- Hundreds of truly life-like people who can carry on complex conversations and interactions with you.



Screen displays shown from the Apple™. Others may vary. Allows the use of Ultima IV characters. No previous Ultima experience required.



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text to a drawing. Besides just typing in the words, you can import small text files created with a word processor. You can select from over 20 fonts and control shadowing effects and point sizes for each font. You can also specify the direction the text will read—that is, left to right, top to bottom, upside down, or bottom to top. Again, something beyond the ordinary.

Although most of the functions are suggested by the icons, don't overlook the thorough, logically arranged, well indexed manual jammed with helpful suggestions. There's also on-line help, but it's no substitute for the manual.

Dr. Halo III is an easy, flexible paint package. The layout of the screen makes creating and editing drawings almost intuitive. The many extras—such as showing the cursor coordinates, the ability to import text files, and the function that lets you cut and scale irregular portions of a drawing—are all features that place it ahead of ordinary painting programs.

—BROOKS HUNT

MergeWrite

VERSION REVIEWED: 1.1 R1

SYSTEM REQUIREMENTS: 512K Macintosh; two drives optional; *MacWrite* required; *Record Holder Plus* optional

PUBLISHER: Software Discoveries, Inc., 137 Krawski Dr., South Windsor, CT 06074; (203) 872-1024

PRICE: \$50

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★

ERROR-HANDLING: ★

EASE OF USE: ★ ★ ★ ★

SUPPORT: ★ ★ ★ ★

Pure need brought mail-merge software into my home business. Combining a form letter and list of names has endless business applications—client promotions, dunning notices, or sales letters, for instance—but merging letters individually is exhausting. It's painless, though, with *MergeWrite*, a mail-merge add-on utility that works with the classic *MacWrite*.

The 22-page manual explains how to create, customize, and merge form letter and data documents, though some letter spacing and syntax problems go unmentioned.

You produce a form letter the same way you write any *MacWrite* document. Then you customize it with field names (categories of information listed in the data document) and specific text, adding or deleting using IF-ELSE-ENDIF conditional instructions. For example, five field names found in a form letter might be Last Name, Street Address, City, State, and Zip. And you might use the

conditional structure to say (in essence): "If the balance due is greater than \$100 and the days outstanding is greater than 60, then send balance-due-today letter or else send complimentary letter."

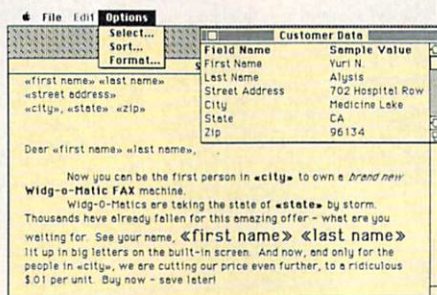
The data document, also created in *MacWrite*, contains the information you wish to merge with your form document. If you use the *Record Holder* or *Record Holder Plus* database program, no separate data document is needed; *MergeWrite* will read its files directly.

MergeWrite does force you to set up your data and form-letter files exactly; for instance, if you insert an extra space after a data field, the program won't recognize it when merging. Other than that, *MergeWrite* works smoothly. The rest of the merging process is straightforward, and you can pre-select specific data records (such as "Ohio only"), sort alphabetically or by zip code, and have the computer prompt you before printing each copy (allowing you to skip names)—all by mouse and pull-down menu.

Once you learn it, *MergeWrite* is easy to use, and if you have a question, the telephone support is first-rate. I called three times without identifying myself as a reviewer and received thorough, courteous explanations each time.

Time is money, indeed. An excellent value, *MergeWrite* can pay for itself the first time you use it. For people like me, responsible for diverse office tasks, *MergeWrite* is a treasure, performing an odious but necessary job quickly and well. With *MergeWrite*, there's no returning to the labor-intensive bad old days for me, that's guaranteed.

—LESLIE SHAW



MergeWrite, an easy-to-use utility.

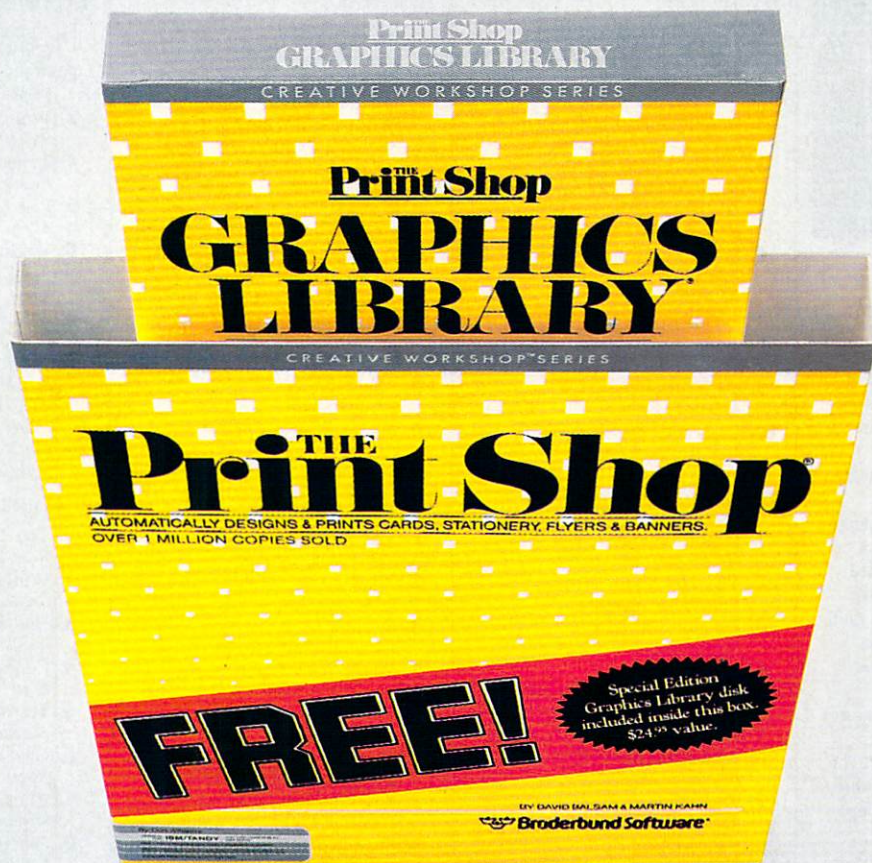
SOFTWARE QUICK TAKES

TITLE/PUBLISHER PRICE/VERSION	SUMMARY	SYSTEM REQUIREMENTS	RATINGS				
			O	D	EH	EU	S
PC Quintet Timeworks, Inc. 444 Lake Cook Rd. Deerfield, IL 60015 (312) 948-9200 \$100 v1.0 (reviewed); v2.0 (available)	Tight integration among word processor, relational database, spreadsheet, thesaurus, and communications modules gives you surprisingly inexpensive, serious value in small-business software. Sharing data from multiple database and spreadsheet files is a special strength. But the keyboard locked up more than once (losing all my data) and the program is too slow (lots of disk access) to be perfect. —Henry F. Beechhold	512K IBM PC or PS/2. Two drives optional. CGA or EGA (for graphics). 5.25-inch, 3.5-inch.	★	★	★	★	★
ShowOff Broderbund Software 17 Paul Dr. San Rafael, CA 94903 (415) 492-3200 \$60 v1.1	Even beginners can create visual aids for presentations such as bar or pie charts, stickers (prepared graphics), and icons (fancy letters or symbols). Either print out or present on-screen shows. Limitations include no rotating text for graphs. Better for small businesses and organizations than corporate use. —Judith Zornberg	512K Apple IIgs. Color monitor. Printer optional. 3.5-inch. CP.	★	★	★	★	★
SuperLaserSpool SuperMac Software 295 N. Bernardo Ave. Mountain View, CA 94043 (415) 964-9694 \$150 v2.0	Spooling software saves you time by saving a formatted document to disk and printing it out while you go on to work with another document or even another program. Works well but, as a trade-off, your programs tend to run a little slower and it prints out in stops and starts. Supports an ImageWriter as well as laser printers. —David Hallerman	512Ke Macintosh. Two drives (hard-disk drive recommended). Laser printer optional. System 4.1 or higher.	★	★	★	★	★

Ratings Key: O Overall Performance; D Documentation; EH Error-Handling; EU Ease of Use; S Support; ○ Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★ Excellent

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24-pin and
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IBM Proprinter XL24, NEC P series,
Toshiba P321, P341, P351 and 100% compatibles

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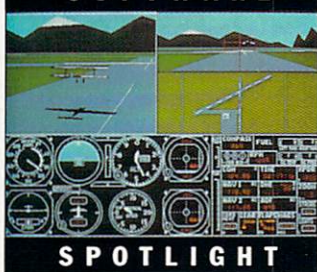
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SOFTWARE



SPOTLIGHT

Microsoft Flight Simulator Version 3.0

The first major update of *Flight Simulator* in four years is here—and it's loaded with new features. Pull-down menus place the new options within easy reach and give novice pilots a quick start. The multiple window option allows you to choose between five different views.

A Lear Jet (with more than double the flight speed of the old Cessna 182) and a crop duster have joined the Microsoft squadron. The old World War I Flying Ace game is still there, but they have added a new crop-dusting game and formation flying. In addition, two or more players using separate machines can fly together via modem or cable. *Version 3.0* even has a built-in flight school that demonstrates everything from taking off to performing loops and spins.

The graphics of *Version 3.0* look better, the game system allows for more flexibility, and the improved planes give flying aces fresh challenges while the new options help novice pilots ease into flying. *Flight Simulator 3.0* leaves all the other flight simulators flapping their wings.

—STEVE WILLIAMS

Microsoft Corp., (206) 882-8080. Requires: 256K IBM PC with CGA. Hard-disk drive recommended; \$50.



These best-seller lists, prepared exclusively for HOME-OFFICE COMPUTING by Egghead Discount Software, are based on actual sales at 145 Egghead stores in the United States for the month of August.

IBM

BUSINESS

1. Lotus 1-2-3 v2.01
Lotus Development Corp.
2. WordPerfect v5.0
WordPerfect Corp.
3. Norton Utilities Advanced Ed.
Peter Norton Computing, Inc.
4. Windows/286 v2.10
Microsoft Corp.
5. Word v4.0
Microsoft Corp.
6. PC DOS v4.0
IBM
7. Sideways v3.2
Funk Software
8. Turbo Pascal: v4.0
Borland International, Inc.
9. dBase III Plus v.1.1
Ashton-Tate Corp.
10. Carbon Copy Plus v5.0
Meridian Technologies

ENTERTAINMENT

1. Flight Simulator v3.0
Microsoft Corp.
2. The Toy Shop
Broderbund Software
3. Leisure Suit Larry
Sierra On-Line
4. Ultima V
Origin Systems/Broderbund
5. T.V. Game Shows
ShareData
6. Chuck Yeager's AFT
Electronic Arts
7. Test Drive
Accolade
8. Police Quest
Sierra On-Line
9. Hardball
Accolade
10. Falcon
Spectrum HoloByte

EDUCATION

1. Learning DOS v1.01
Microsoft Corp.
2. Where in the USA Is Carmen San Diego?
Broderbund Software
3. Math Blaster Plus
Davidson & Associates
4. Where in the World Is Carmen San Diego?
Broderbund Software
5. Typing Tutor IV
Simon & Schuster
6. Reader Rabbit
The Learning Company
7. Think Quick
The Learning Company
8. Mixed-Up Mother Goose
Sierra On-Line
9. Barron's Study Program for the SAT
Barron's Educational Series
10. Alge-Blaster
Davidson & Associates

MACINTOSH

BUSINESS

1. MacDraw II
Claris Corp.
2. Excel v1.5
Microsoft Corp.
3. Word v3.01-v3.02
Microsoft Corp.
4. Tops v2.0
Tops, Inc.
5. S.U.M.
Symantec Corp.
6. PowerPoint v2.0
Microsoft Corp.
7. PageMaker v3.0
Aldus Corp.
8. MacWrite v5.0
Claris Corp.
9. FileMaker II
Claris Corp.
10. Cricket Graph v1.2
Cricket Software

ENTERTAINMENT

1. The Toy Shop
Broderbund Software
2. MacGolf
PCAI
3. Beyond Dark Castle
Silicon Beach Software
4. Shufflepuck Cafe
Broderbund Software
5. Chuck Yeager's AFT
Electronic Arts
6. Falcon
Spectrum HoloByte
7. Flight Simulator v1.02
Microsoft Corp.
8. Shadowgate
Mindscape
9. Sargon IV
Spinnaker Software
10. Dark Castle
Silicon Beach Software

EDUCATION

1. Where in the World Is Carmen San Diego?
Broderbund Software
2. Mavis Beacon Teaches Typing
Electronic Arts
3. Hyper Tutor
Telegraphics
4. Math Type
Design Science, Inc.
5. Typing Tutor IV
Simon & Schuster
6. Math Blaster
Davidson & Associates
7. Type
Broderbund Software
8. Reader Rabbit
The Learning Company
9. Turbo Pascal: Tutor
Borland International, Inc.
10. Perfect Score w/Perfect College
Mindscape

APPLE

BUSINESS

1. AppleWorks v2.0
Claris Corp.
2. Publish-It!
Timeworks
3. WordPerfect v1.1 & v2.0
WordPerfect Corp.
4. Timeout: QuicksPELL
Beagle Brothers
5. List & Mail
Avery
6. Webster's New World Spelling Checker
Simon & Schuster
7. Sideways v2.0
Funk Software
8. Timeout: Super Fonts
Beagle Brothers
9. ASCII Express
United Software Industries
10. GEOS
Berkeley Softworks

ENTERTAINMENT

1. The Toy Shop
Broderbund Software
2. Wings of Fury
Broderbund Software
3. Hardball
Accolade
4. California Games
Epyx
5. Test Drive
Accolade
6. Chuck Yeager's AFT
Electronic Arts
7. Aliens
Mediagenic
8. Paperboy
Mindscape
9. Alien Mind
PBI Software
10. Ultima V
Origin Systems/Broderbund

EDUCATION

1. Where in the World Is Carmen San Diego?
Broderbund Software
2. Where in the USA Is Carmen San Diego?
Broderbund Software
3. Reader Rabbit
The Learning Company
4. Math Blaster Plus
Davidson & Associates
5. The Oregon Trail
MECA
6. Think Quick
The Learning Company
7. Mavis Beacon Teaches Typing
The Software Toolworks/EA
8. Where in Europe Is Carmen San Diego?
Broderbund Software
9. Number Munchers
MECA
10. Sesame Street Numbers
Polarware Software

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Designed to Fit Your Business and Personal Schedule*

BY LYNIE ARDEN

After working for almost 10 years as a sales associate for AT&T in Topeka, Kansas, Lorie Conklin feels ready to move up, but she knows she doesn't have much of a future at AT&T, or anywhere else, without a college degree. Conklin is one of 25 million Americans who started but never finished college. "When I started college as a teenager, I didn't even know what I wanted to study," says Conklin. "After a year or so, I quit and got a job."

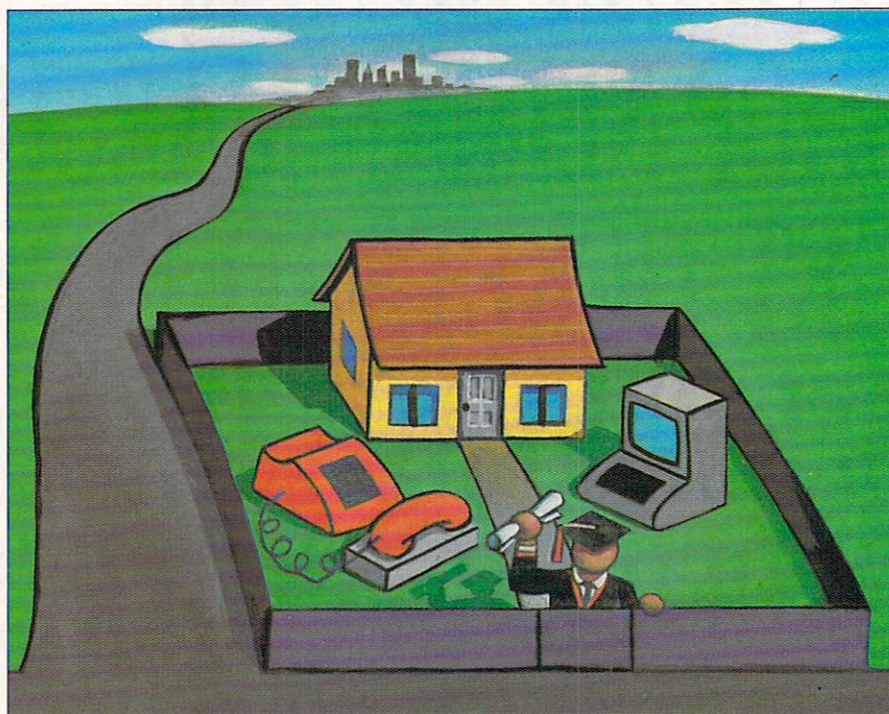
Now that she's been in the work force awhile, Conklin says she knows what she wants, and she also knows how to get it. The idea and the tuition fees came from AT&T. She is working toward a BA in business, specializing in marketing and public relations. And she's doing it without having to quit her job—and without leaving home.

WORKING ADULTS GO BACK TO SCHOOL

Lorie Conklin is enrolled in the Electronic University Network (EUN), a telecommunications system that connects her to dozens of college campuses around the country via her Tandy 1000 EX and modem. She can pick and choose from a smorgasbord of credit and noncredit courses offered by all of these institutions. "Having this kind of a choice gives me a better education than if I had only one college to work with," says Conklin.

Wherever the class originates, individual instruction is only a keystroke away. Each professor uploads lessons and assignments with comments. Conklin reads over the lessons and writes the assigned essays when she's ready. When she returns the completed work, she can include questions to the professor or request a consultation and expect a response within 48 hours. "This is great for people like me who are better in one-on-one situations than in large groups. It doesn't happen often, but if I do get into a bind, I can correspond directly with my professor by phone or computer."

Most of EUN's students, like Lorie Conklin, are corporate employees who are subsidized through tuition reimbursement programs. Hundreds of employers participate in the program because they understand that



upgrading an employee's education is an important component of his or her value to the company. From the employee's point of view, the need to earn advanced degrees or be able to change careers entirely is increasing constantly. These days, jobs often change, move, or disappear altogether.

Until now, working adults desiring an education have been frustrated by the circumstantial barriers of time and geography. How do you attend classes 35 miles away after working all day? And why should credits be discounted when you transfer to another university? With telecommunications acting as an equalizer, continuing education can be affordable, accessible, and practical to anyone with a computer, a modem, and the desire for self-improvement.

COMPUTER CONFERENCING ENHANCES ON-LINE STUDIES

Educator and communications specialist Dr. Paul Levinson became so fascinated with the possibilities of electronic networking in education that four years ago he started an electronic university called Connected Education, Inc. (ConnectEd). Today, 90 percent

of the students work full-time. "The aim of the electronic university is to bring together teachers and students with similar educational interests, no matter how far they are from each other," says Levinson, who with his wife, Tina Vozick, runs ConnectEd from their New York City co-op.

Hundreds of academic and personal enrichment courses are offered through ConnectEd's computer conferencing system, including a course on running your own small business. Among several degree programs students can earn entirely via computer conferencing is the Master of Arts in Media Studies through the New School of Social Research in New York City. While taking courses in such topics as ethics in the technological world, propaganda, and computers in the democratic process, students also attend writers' conferences on-line, learn to write software documentation, and develop skills in desktop publishing.

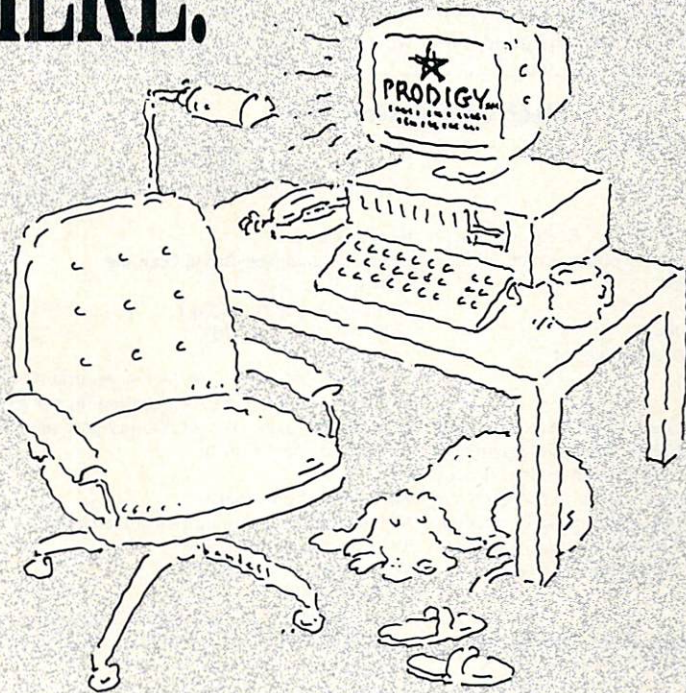
Throughout each two-month course, students and faculty enter into a simulated classroom environment whereby comments and messages are exchanged electronically. Any time of the day or night, students can read

LYNIE ARDEN is a contributing editor for HOME-OFFICE COMPUTING.

ILLUSTRATION BY AMARION STAMLER

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Anything you can do, you can do better.

and retrieve material entered by faculty and other students, as well as ask questions of their own. Students can exchange private messages with faculty through the electronic mail system or communicate in real time.

Computer networking doesn't stop with the classroom at ConnectEd. There is an extensive on-line library open 24 hours a day; a low-cost on-line subscription lecture series; the Technical Forum, which centers on the problems, products, and possibilities of microcomputers and associated software; a "student lounge" for private chats; and even the ConnectEd Café, an electronic meeting place for fun and casual conversation. According to Levinson, topics of discussion in the café have ranged from the quality of fast food in New Jersey to the presidential race. There is also a newsletter, *Synapse*, published completely on-line by faculty, students, and staff.

"I think computer conferencing is the most revolutionary development in education since the invention of the printing press," declares Levinson. "It represents the beginning of the end of traditional place-based, book-paced education."

FLEXIBLE SCHEDULING ATTRACTS MOBILE STUDENT BODY

Dr. Andrew Sass, Director of American Open University, also believes strongly in the value of conferencing in education. "Computer conferencing actually gets you more individual attention than you would have in a traditional classroom situation," says Dr. Sass. "Consider the close of a typical college class. Professors are in a hurry to get to their next lecture, students are in a hurry to get to their next class, and most of us don't have the aggressive personality it takes to catch a professor's attention in that situation." Professors at American Open University answer students' questions in detail both through computer conferencing and through electronic mail.

American Open University of New York Institute of Technology (AOU/NYIT) offers specially designed independent study courses leading to degrees in behavioral sciences, business administration, and general studies. Anyone with a high-school diploma and a computer is eligible to enroll.

All courses are held in 26-week increments and can be started at the student's convenience. Dr. Sass feels this flexibility in scheduling is a key to the acceptance of on-line learning. "We are a very mobile society," he remarks. "Sometimes the Post Office returns an assignment marked 'moved, left no forwarding address.' Within a couple of weeks, we'll get a call from the student telling us he or she has moved to another state. It is extremely difficult for a working adult to continue working toward a degree if campus attendance is required."

"I think computer conferencing is the most revolutionary development in education since the invention of the printing press."

The U.S. Navy Ship Vanguard provides a vivid example of the mobility of AOU's student body. In 1986, 21 of the ship's active duty personnel enrolled in college degree programs with AOU. The seamen appreciate not having to interrupt their studies while at sea. Between ports, completed assignments are stored on disk. The disks can be swapped by mail, or their contents can be uploaded when the ship docks. The first of the group to receive his BS degree did so last June, and 80 percent of the original enrollees are still in the program.

TEACHERS GO ON-LINE

Where do teachers go to learn about computer learning? For the past five years, Nova University in Fort Lauderdale, Florida, has offered on-line master's and doctoral programs in education with an emphasis in computer education. Teachers learn to use computers and technology more effectively with their students.

Nova students in this computer-based program are almost all K-12 teachers or admin-

istrators at the college level. They use their own personal computers and modems to access instruction from the university's system. At least one year of teaching experience, a college degree, and basic word processing skills, along with evidence that they can learn a programming language, are required to enter the program.

"Our goal is to help teachers improve their teaching programs by using technology," says Dr. Al P. Mizell, the director of Nova's Doctor of Education in Computer Education Programs. "The teachers that come to us have been turned on to the possibility that high technology can enhance education. They realize they can increase motivation in students to learn through the use of computers. We teach them how to capitalize on that. What happens is they get revitalized and overcome teacher burnout. That enthusiasm, in turn, spreads to their students."

There is also a side benefit of being hooked into an international network of colleagues who have particular areas of expertise in computer education. Students can go on-line during evening and weekend hours, ask a question, and expect several responses back within a day or two.

Nova University believes strongly that electronic communications alone is not enough. Students have the choice of spending five weekends a year at one of the university's five regional centers or spending two one-week sessions at the Florida campus. "The friendships that bond during those short sessions are extraordinarily strong," remarks Dr. Mizell. "We are now trying to form an electronic alumni association so that we can all keep in touch."

Electronic Universities

Electronic University Network

1150 Sansome St.
San Francisco, CA 94111
(415) 956-7177

\$200 one-time membership fee. \$130 per undergraduate credit, \$217 per graduate credit. Prices include connect charges.

Connected Education, Inc.

92 Van Cortland Park South, No. 6F
Bronx, NY 10463
(212) 548-0435

Undergraduate registration is \$20 per term plus \$888 per three-credit course. Graduate registration is \$60 plus \$948 per three-credit course. Prices include connect charges. More information is available on-line through The Source (account number: AAH298), CompuServe (account number: 72517,3107), and MCI Mail (account name: Connected Education).

American Open University of New York Institute of Technology

211 Carleton Ave.
Central Islip, NY 11722
(800) 222-NYIT; (516) 348-3000

\$150 one-time registration fee. Undergraduate

courses are \$85 per credit outside of New York City, \$175 per credit within New York City. An additional \$25 per course covers connect charges.

Nova University

Center for Computer-Based Learning

3301 College Ave.
Fort Lauderdale, FL 33314
(800) 541-6682 ext. 7047
(305) 475-7047

\$30 application fee. Master's program costs \$3,600 per year plus \$15 registration fee per term. Doctoral program costs \$4,500 per year plus \$30 registration fee per term.

NRI School of Electronics

McGraw-Hill Continuing Education Center
3939 Wisconsin Ave., NW
Washington, DC 20016
(202) 244-1600

\$500-\$3,000 per course. Required materials such as computer, modem, or electronics kits included in course fee.

For information on new developments in computer learning, check out the CompuServe Education Forum, GO ED.

Presumably, the first to join will be Nova's first on-line graduate. Dr. Eileen Boyle Young, an associate professor in computer education at Spalding University in Louisville, Kentucky, received her Doctorate in Computer Education, was nominated for a Fulbright Scholarship, and is one of five recipients of a distinguished achievement award in computer education from *Electronic Learning* magazine, published by Scholastic. Not bad for someone who had to share her computer with a 4-year-old daughter!

"While earning my on-line degree, I used to put my daughter in the open desk drawer right in front of me," says Young. "I'd just put my arms around her and type." When stray letters and numbers showed up in her work, Young realized that her daughter was adding her own creative input to her mother's assignments. "I finally bought her the Muppet Learning Keys (Sunburst Communications). That was the equitable settlement," says Young.

A HANDS ON-LINE APPROACH

Technology itself is moving forward at an incredible speed. How can someone in a technical career keep abreast of the latest developments? One way is to enroll in an NRI training program.

NRI School of Electronics has been in the

correspondence school business since 1914, but times have changed a lot since then. At that time, a hands-on course in "wireless radio" was innovative. Now students can study at home for careers in many areas, from robotics to satellite communications. Whatever their choice of study within the computer field, tuition now includes a personal computer.

Another sign of the times is the motivation of NRI's students. In the past, students often enrolled for the fun of it, considering electronics a hobby. Today, most are already in technical careers and use NRI courses to update their skills in the workplace.

After graduating from California State University at Northridge, Arthur Lopez, NRI's graduate of the year, was initially unable to find work in his field, communications, which includes radio, television, and film production. He started a wallpaper-hanging business. It paid the bills, but he knew he could do better than that. His father, himself a graduate of a correspondence school, convinced him to enroll in NRI's Microcomputers and Microprocessors course.

Within months after starting his training, Lopez applied for an entry-level technician's position at the Jet Propulsion Laboratory in Pasadena. He landed a job by showing the recruiter his transcripts in progress and the

NRI Achievement Awards he had already received. He continued his studies while on the job and since graduation has been promoted three times. He is currently a Hardware Design Engineer working at the Infrared Processing and Analysis Center at the California Institute of Technology.

In the meantime, he is satisfying his entrepreneurial urge by running ACL Computers, his home business offering custom-designed and built computer systems.

The time has never been better to pursue higher education. You may be looking for a promotion or thinking about a career change. Or perhaps you have responsibilities at home or travel often and can't commit yourself to inflexible class schedules. With a personal computer, you can take one course just for the fun of it or go all out and earn a college degree. With the trend toward learning at home, college may never be the same.

"There is a great deal of talk about the information age and the outmoded notion that the only way to get the information is to go to a place and pick it up," says Dr. Eskow of EUN. "That notion is about to end. If we can work at home, we can study at home. If we can move information to the home, we can move intellectual study about humanities and sciences and business to the home. We are talking about using the technology that is here right now." ■

Software for Learning and Leisure

*Comprehensive and Capsule Reviews of New and Noteworthy Programs
for Education, Family Productivity, and Entertainment*

The following table and ratings key relate to full and capsule software reviews below. Listed are various types of computers as designated under "System Requirements" and the models included under each designation. Any additional hardware, software, or memory listed is required unless noted as "recommended" or "optional." When more than one computer is listed under "System Requirements," the machine marked with an asterisk (*) is the one on which the software was reviewed. Requirements are *not* listed where obvious (for instance, printers with graphics programs). Operating system requirements, such as MS-DOS or the Macintosh System file, are listed only when they're not the standard, minimum requirement (DOS 2.0 for IBM PC or compatibles, System 3.2 for the Macintosh, or ProDOS for the Apple II).

Ratings Key: O Poor; * Average; ** Good; *** Very Good; **** Excellent.

Designation	Models
512K Amiga	500, 1000, 2000
48K Apple	II/II Plus/IIe/IIc/IIgs (in IIe/c mode)
64K Apple	II Plus/IIe/IIc/IIgs (in IIe/c mode)
128K Apple	IIe/IIc/IIgs (in IIe/c mode)
128Ke Apple	IIe (enhanced ROM)/IIc/IIgs (in IIe/c mode)
Apple IIgs	IIgs only
48K Atari	800/600XL/800XL/65XE/130XE
512K Atari ST	520ST/1040ST/Mega ST
C 64	C 64, C 128 (in C 64 mode)
IBM PC	PC/XT/AT, PS/2 and compatibles
128K Macintosh	128K/512K/512Ke/Plus/SE/II
512K Macintosh	512K/512Ke/Plus/SE/II
512Ke Macintosh	512Ke/Plus/SE/II
1MB Macintosh	Plus/SE/II

EDUCATION

FamilyCare

SYSTEM REQUIREMENTS: 256K IBM PC, 512K Macintosh; two 400K or one 800K drive; 5.25-inch.

PUBLISHER: Lundin Laboratories, Inc. 29451 Greenfield Rd., Southfield, MI 48076; (313) 559-4561

PRICE: \$99

COPY PROTECTED: No

OVERALL PERFORMANCE: ★★★★★

DOCUMENTATION: ★★★★★

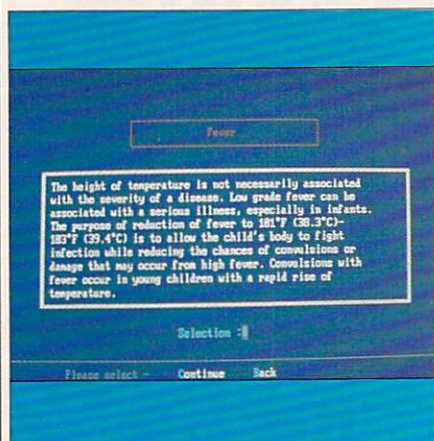
ERROR HANDLING: ★★★★★

GRAPHICS QUALITY: N/A

EASE OF USE: ★★★★★

Should we call the doctor now or wait until morning? Is this rash anything to worry about? What do I do if my child is vomiting? Parents of young children have thousands of questions when it comes to illness or injury, and first-time parents often feel overwhelmed with uncertainty when raising a new baby.

FamilyCare is a first-rate medical reference program developed by a team of professionals to help answer many of the medical questions that could arise from birth to age 16. In a diagnostic fashion, much like a doctor's, the program asks questions about the child's symptoms. It helps you decide whether immediate medical or emergency treatment is necessary, a medical consultation is required, or if a simple trip to the drug store for an over-the-counter drug is sufficient. Rashes, eye injuries, hearing loss, im-



FamilyCare helps you diagnose your child's illnesses.

petigo, and hundreds of other problems are addressed in a clear and logical format. You simply follow the menu system through a range of diagnostic questions about your child's condition. If you're not sure how to answer a particular question, the program suggests answers so that a serious illness or condition is not overlooked. When your answers to the questions describe an extremely serious condition, the words "EMERGENCY! GET MEDICAL HELP NOW!" appear on the screen as a warning.

Although not a substitute for professional medical care, this program is an excellent complement to a physician's care and could be invaluable for those middle-of-the-night quandaries as to whether or not to call the doctor. My husband, an emergency-room physician, judged *FamilyCare* useful in establishing guidelines for dealing with medical situations and helping parents feel more sure of the care they give their children. He felt the advice was sound, especially since the program always recommended professional help in ambiguous situations.

—DORIS ANDERSON

Scoop Mahoney: Investigative Reader

SYSTEM REQUIREMENTS: 64K Apple. 5.25-inch.

PUBLISHER: DLM, One DLM Park, Allen, TX 75002; (800) 527-4747

PRICE: \$46

PUBLISHER'S SUGGESTED AGES: 8-14

COPY PROTECTED: Yes

OVERALL PERFORMANCE: ★★

DOCUMENTATION: ★★

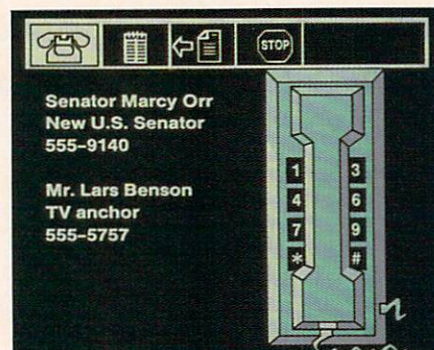
ERROR HANDLING: ★★

GRAPHICS QUALITY: ★★

EASE OF USE: ★★

You're a reporter for a national magazine. Your office isn't much—just four walls and a desk—but it's a start. Your first assignment: Get the scoop on a front-running Senatorial candidate. You have only a press release and a couple of telephone numbers to go on. Can you do it? Sure! It's *Scoop Mahoney: Investigative Reader*. The program looks and feels like a game, but there's much more to it than that. Kids are actually improving their reading-comprehension skills while they play with reporter Scoop.

I tagged along with reporters Betsy and Jacob (my neighbors' kids) as they played. The game began when a nice-looking on-screen editorial assistant gave 12-year-old Betsy an assignment. "Good graphics," commented Jake, a third-grader. Scoop then asked several questions to focus attention on the subject. The program gave Betsy a look at the story notes, which showed what information to seek and helped her get the facts about the state and the national senate.



Telephone interviews help reporters gather facts in Scoop Mahoney: Investigative Reader.

Betsy chose to start investigating the story with a press release. After reading it, she turned to the story notes again and filled in some blanks. Not all of the information had been in the release, so Betsy decided to interview some contacts by telephone. She entered a phone number and prepared to type in questions, but the program had other

ideas. "It's asking all the questions," Betsy complained. "I might as well not even be here."

Then it was back to the story notes to fill in more blanks. Betsy turned in her report to the Editor-in-Chief to be checked for facts. "She looks mean," commented Jacob. Betsy's work was 100-percent correct, so she turned the computer over to her brother.

After three assignments they were promoted to a better office—one with a painting on the wall. As they progressed to the program's more difficult levels (there are four), the children had to draw inferences from the material, rather than just remember what they had read. This was a little harder for Jacob, so Betsy lowered the level of accuracy needed for promotion to 50 percent, with only one assignment at each level. Before long, they were both Assistant Editors in an office with a view.

Scoop Mahoney follows correct procedures in helping children improve reading comprehension. It could be very beneficial to children in the intermediate grades who need remedial work in that area.

—TAN SUMMERS

Sky Travel

SYSTEM REQUIREMENTS: 256K Apple, C 64/128*, 512K Macintosh. Printer optional. 5.25- and 3.5-inch (Apple).

PUBLISHER: MicroIllusions, 17408 Chatsworth St., Granada Hills, CA 91344; (818) 360-3715

PRICE: \$50-\$70

PUBLISHER'S SUGGESTED AGES: 8+

COPY PROTECTED: No

OVERALL PERFORMANCE: ★★

DOCUMENTATION: ★★

ERROR HANDLING: ★★

GRAPHICS QUALITY: ★★

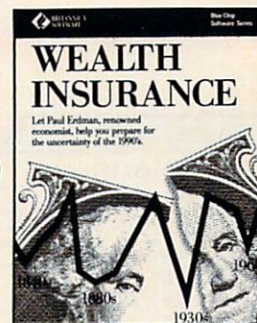
EASE OF USE: ★★

Sky Travel is an entertaining and rewarding program from the start. In just 15 minutes I was viewing sky patterns of the day my husband was born. Next I printed a picture of what the sky was going to look like at 10:30 that evening so I could go outside and compare it to the actual sky. Other features help locate any star or constellation you name, look straight up or in any direction, view sky patterns in a 72-degree range (the approximate scope of the human eye), and narrow or enlarge portions of the sky. You can also go into space and chart deep-sky objects of interest. You can travel thousands of years backward and forward and emulate solar and lunar eclipses in all phases of the moon.

As I explored the program further, I was intrigued by the depth and breadth of information about our solar system and the mys-

(Text continued on page 110)

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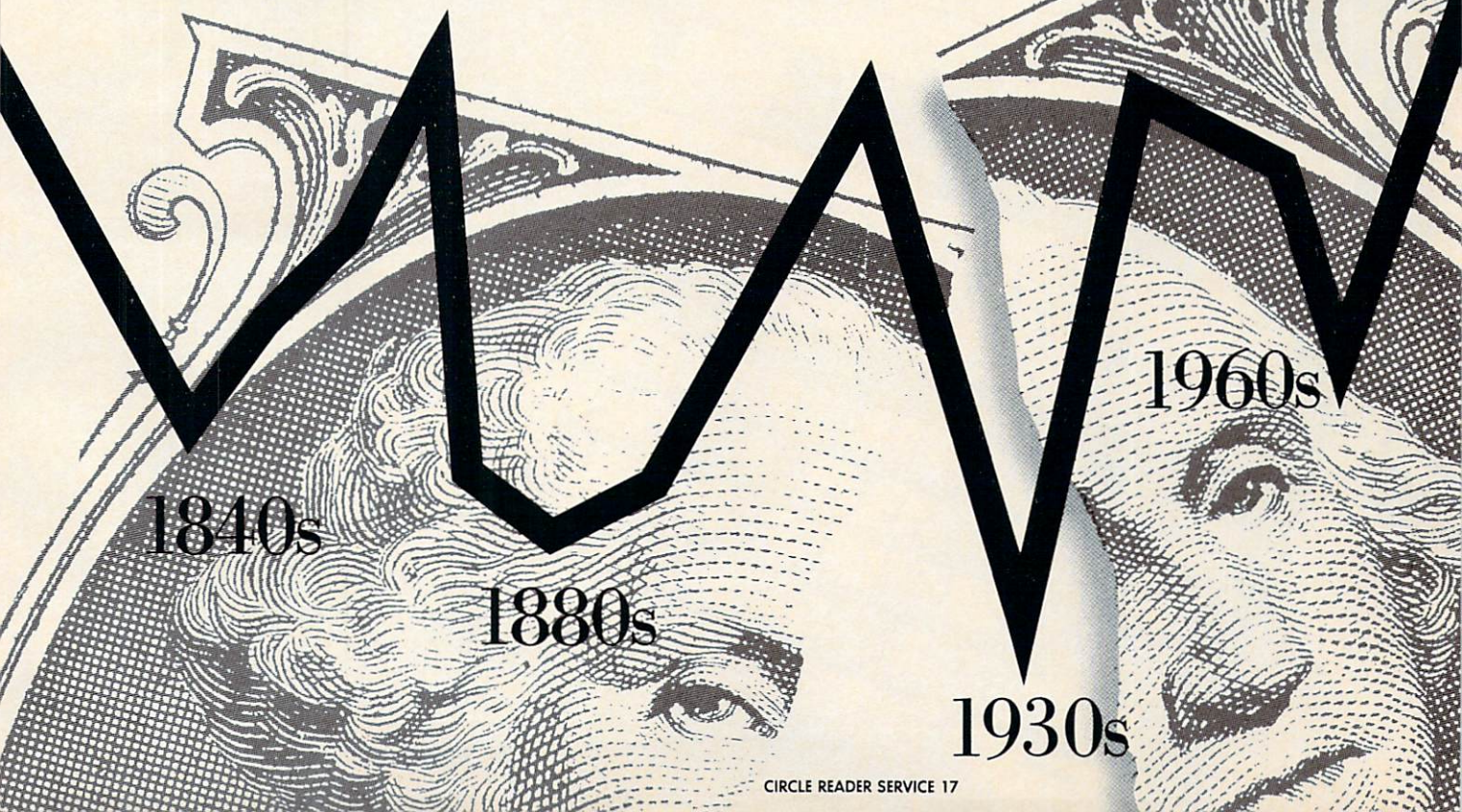
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FAMILY COMPUTING

CAPSULE REVIEWS

EDUCATION/FAMILY PRODUCTIVITY

TITLE/PUBLISHER PRICE	SUMMARY	SYSTEM REQUIREMENTS	RATINGS						
			CP	O	D	EH	GQ	EU	
Calculus Broderbund Software Inc. 17 Paul Dr. San Rafael, CA 94903 (800) 527-6263 \$100	Aimed at high school or college students, <i>Calculus</i> does more to confuse than to clarify. Though the graphs are beautifully drawn and the manual clearly written, lessons and tutorials are ineffectual. Better to spend the money on 4 or 5 hours of private tutoring than to compound frustration in an already difficult subject. —Lisa Zornberg	512K Macintosh. External 800K or hard drive.	N	○	★	★	★	★	★
Dinosaurs Are Forever Polarware Software 1055 Paramount Pkwy. Batavia, IL 60510 (312) 232-1984 \$30	This disk-based coloring book has 26 pictures of dinosaurs to color for inclusion in personalized posters, banners, or calendars. Dino graphics can be printed in two sizes with or without educational descriptions. Supports black-and-white and color printers. —Sunow Bradley	128K Apple*, C 64/128, 256K IBM PC. CGA. Color monitor recommended. 5.25- and 3.5-inch disks (Apple and IBM).	N	★	★	★	★	★	★
Jack and the Beanstalk Learning Kit The Strawberry Kite Collection 15466 Los Gatos Blvd. Los Gatos, CA 95030 (408) 867-1329 \$20	Children ages 5-8 can practice addition and subtraction facts as well as counting, word recognition, and reading comprehension skills by following the familiar tale of "Jack and the Beanstalk." Animation, music, a print feature, and the ability to add your child's name to the story enhance interest in the program. —Doris Anderson	384K IBM PC. CGA, DOS 2.1 or higher. Printer optional. 5.25- and 3.5-inch disks.	N	★	★	★	★	★	★
Spelling Mastery DLM Software One DLM Park Allen, TX 75002 (800) 527-4747 \$46	My first, second, and third graders' spelling improved by using this program, but they were bored after several sessions. Graphics and sound could be better. One nice feature is the ability to add your own word lists. Does the job but lacks pizzazz. —Sunow Bradley	64K Apple. 5.25-inch disks.	Y	★	★	★	★	★	★



FAMILY COMPUTING

CAPSULE REVIEWS

ENTERTAINMENT

TITLE/PUBLISHER PRICE	SUMMARY	SYSTEM REQUIREMENTS	RATINGS					
			CP	O	D	PS	GQ	EU
Alien Mind PBI Software, Inc. 1163 Triton Dr. Foster City, CA 94404 (415) 349-8765 \$55	Fend off crazed robots while exploring a hostile space station being overrun by aliens. Gather tools and information to prevent the aliens from spreading. The fast pace, crisp graphics, and endless surprises combine to make this an exciting and challenging arcade game. —Alex Shakar	512K Apple IIgs.	Y	★	★	★	★	★
John Elway's Quarterback Melbourne House 711 West 17th St. Unit G9 Costa Mesa, CA 92627 (714) 631-1001 \$30-\$40	One or two players choose formations and run plays in this home version of the coin-op arcade game. High-quality graphics and the ability to alter your game plan even after you've entered a move makes <i>Quarterback</i> one of the best football games on the market. —Steve Williams	64K Apple, 512K Apple IIgs, C 64/128, 256K IBM PC with CGA*. 5.25- and 3.5-inch disks (IBM). Joystick recommended.	Y	★	★	★	★	★
Questron II Strategic Simulations, Inc. 1046 North Rengstorff Ave. Mountain View, CA 94043 (415) 964-1353 \$40-\$50	A complete fantasy-adventure combining realistic graphics with an interesting story. This sequel offers a wide variety of locations and creatures (both hostile and amicable). It is slow-moving at times but enjoyable throughout. —Alex Shakar	64K Apple*, 512K Apple IIgs, 512K Atari ST, C 64/128, 256K IBM PC with CGA. 5.25- and 3.5 inch disks (IBM).	N	★	★	★	★	★
Shufflepuck Cafe Broderbund Software, Inc. 17 Paul Dr. San Rafael, CA 94903 (800) 527-6263 \$40	Challenge nine opponents with distinct personalities and varying degrees of skill to a "friendly" game of air hockey. The ability to customize the paddle, add obstacles, and enter a tournament make this a game, you'll be playing long after you've defeated Biff, the local champ. —Jim Phelan	512K Macintosh.	Y	★	★	★	★	★

Ratings Key: O Overall performance; D Documentation; EH Error-Handling; PS Play System; EU Ease of Use; GQ Graphics Quality; ○ Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★★ Excellent; N/A Not Applicable; CP Copy Protected, yes or no

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PreComputer 1000 tutors in BASIC programming. It includes five math activities, has a built-in calculator with memory, as well as a 20 character dot matrix display screen.



Whether a 4th grader or an 8th grader, PreComputer 1000 will challenge and stimulate an active mind with four levels of difficulty in history, geography, science and general facts. And, it features word games that can be played with one or two players.

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This column opens a new promotional avenue for SubLOGIC, a small engineering-oriented company dedicated to producing the finest in flight simulation software. Please tune in to "Flight Notes" each month for the latest on SubLOGIC software, new product announcements, and product add-on information.

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The Up Periscope/SubLOGIC Connection - ActionSoft Corporation was originally set up as a separate marketing arm for SubLOGIC-engineered, quickly-produced, low-cost simulations specifically designed for mass market channels. We soon discovered that SubLOGIC engineering is incapable of cutting corners when it comes to developing new products. Instead, they spent many months turning **Up Periscope!** into the ultimate submarine simulation with the help of Captain John Patten, USN (Ret.). The development of **Up Periscope!** ended in a polished program with strategic realism that will provide years of unparalleled pleasure. Though I try to avoid hype in this column, I must say in all sincerity that **Up Periscope!** is a steal at only \$29.95. It's far and away the leader in submarine simulations, a fun simulation with true general appeal. Pick it up (if you haven't already done so). You'll love it.

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CIRCLE READER SERVICE 39

FAMILY COMPUTING



This screen from *Sky Travel* shows the sky in New York City on Thanksgiving night.

teries beyond. One fascinating exercise showed me the movements of the sun at different latitudes and different times of the year. For example you can set the time for the beginning of sunset and set the clock at an accelerated rate so that an hour of real time only takes a minute on the computer. Then sit and watch the changing sky of a sunset.

As a novice astronomy buff, one feature I particularly like is the collection of descriptions in the inform mode, which gives pertinent data on celestial objects. You can get fascinating information on spectral class, diameter, distance from the earth, and moving speed of individual stars or constellations. For example, I discovered that the star Vega (or "falling bird") is the second brightest star in the sky and is approaching Earth at 20 miles per second. My only complaint is that the program does not provide a printing option for the descriptions in the inform mode. The information is so interesting I took the time to copy it off the screen.

The program offers many options, such as whether or not to include constellation lines. I loved the sound option. When the sound is on in the map mode, the cursor looks and sounds like an airplane. In the sky mode, the cursor turns into a space ship with an appropriately spacey sound.

The well-written and easy-to-follow manual lists four pages of supplementary reading by specific reference. According to the manual, there are detailed descriptions of the 88 constellations, more than 1,200 stars, and 300 deep-sky objects. Identification codes for these astral objects correspond with universally recognized catalog numbers for locating more information.

This program will be enjoyable for a wide range of users from expert astronomers to beginning star gazers.

—NORMA ODISIO

Solve It!

SYSTEM REQUIREMENTS: 64K Apple. Printer optional. 5.25-inch.

PUBLISHER: Sunburst Communications, 39 Washington Ave., Pleasantville, NY 10570; (914) 769-5030

PRICE: \$75

PUBLISHER'S SUGGESTED AGES: 8+

COPY PROTECTED: Yes

OVERALL PERFORMANCE: ★★★★★

DOCUMENTATION: ★★★★★

ERROR HANDLING: ★★★★★

GRAPHICS QUALITY: ★★★★★

EASE OF USE: ★★★★★

There's sunken treasure to be found in the Caribbean waters. But where? Your only guide is an old ship's log that tells of mysterious islands with ancient temples, dense jungles, giant scorpions, and dangerous whirlpools.

This is just one of the many mysteries awaiting children in *Solve It!*, a marvelous problem-solving and logical-thinking game from Sunburst. You'll probably be as hooked by the program as your kids.

There are six mysteries to solve, and each can be played many times over. Clues and solutions are different every time and there are three levels of difficulty. There are stories about hikers lost in snow-covered mountains, spies meeting in mysterious castles, a haunted house, and more. The screen displays are terrific.

Children read a short story and then use a database to sift through clues. In each mystery there are two pieces of information to find and four or five choices for each. In the mystery of the El Diablo Treasure, the old ship's log mentions five islands. Player-detectives must find the island that was the pirate's hideaway, as well as the island where the treasure is hidden. By using logic and the process of elimination, they can solve the mystery.



Search through clues to track down hidden treasures in *Solve It!*

This is one of the most well-thought-out programs I've seen in a long time. Players are systematically taught to think clearly, and they learn to read for meaning and to find key words to help them search through the database. They can reread the story any time and save and reread clues. A help option explains the logic behind each clue. Players learn to

tell the difference between important and unimportant information and to connect related pieces of information.

At the end of each game, players receive a detailed evaluation of how they played the game, including how well they chose key words for database searches, how many hints they needed, and how well they could tell important from unimportant clues.

The program's one drawback is that a game in progress can't be saved; you either finish the game at one sitting or start a new one next time.

Solve It! is designed primarily for school use and comes with an excellent teacher's guide that contains a complete unit on teaching important thinking skills. By no means should *Solve It!* be restricted to school, however. It's fascinating and would be fun for kids to play at home by themselves or with their friends. It's also an ideal game for families to play together.

—MIRIAM FURST

ENTERTAINMENT

The President Is Missing

SYSTEM REQUIREMENTS: C 64/128, 256K IBM PC*. 5.25- and 3.5-inch (IBM).

PUBLISHER: Cosmi, 431 N. Figueroa St., Wilmington, CA 90744; (213) 835-9687

PRICE: \$25-\$30

COPY PROTECTED: No

OVERALL RATING: ★★★★★

DOCUMENTATION: ★★★

PLAY SYSTEM: ★★★★★

GRAPHICS QUALITY: ★★★

EASE OF USE: ★★★★★

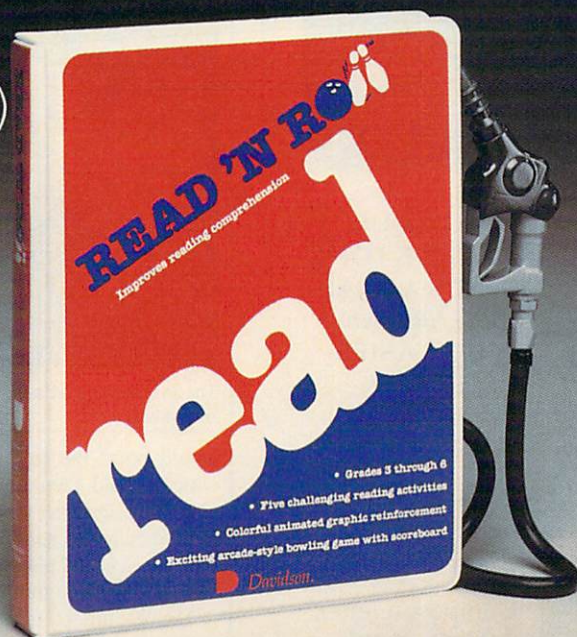
Booting up *The President Is Missing* is like stepping into a spy novel. The President of the United States has been kidnapped along with the leaders of several other countries. You play the part of a special investigator under the command of the Secretary of State. Your assignment is to locate and recover the missing heads of state and discover who is responsible for their abduction.

To aid your investigation, you have at your disposal the Special Investigations Systems (S.I.S.). The S.I.S. is a simulated "on-line" computer that contains most of the evidence pertinent to your case. Using S.I.S., you can examine written and photographic documents for clues, look over the dossiers of suspects, decode messages, and dispatch agents to follow up on leads.

Included with the game is a 30-minute audio cassette tape that has messages from both the kidnappers and the victims, recordings of wiretaps and radio signals, and other pieces of evidence that may be helpful in building your case.

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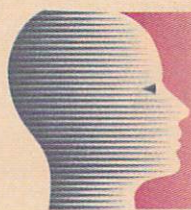
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FAMILY COMPUTING

Technically, the game play is extremely simple; all options are presented in menu form. That, however, is where the simplicity ends. Beneath its stoic exterior, *The President Is Missing* contains a mystery with more twists than a corkscrew. I was amazed by the complex manner in which different clues had to be built upon and linked together. A picture would lead me to an article, which



The President Is Missing, and this man may be responsible.

would point me to a name and a dossier, which would then give me a possible suspect. The clues are sometimes obvious, but often they are as subtle as a misplaced word. After a week of playing, I'm sure there are quite a few clues that I've still overlooked.

The documentation is limited, but sufficient considering the simplicity of the system. The only graphics in the game are impressive photographs included in the dossiers and S.I.S. Although the tape includes some of the worst accents I've ever heard, it gives *The President Is Missing* an added touch of realism (as well as some important clues).

If you're the type of person who likes to be swept up in a good mystery, then get ready for *The President Is Missing*. It's just the game to put your detective skills to the test.

—STEVE WILLIAMS

Ultima V: Warriors of Destiny

SYSTEM REQUIREMENTS: 64K Apple*, C 64/128, 256K IBM PC; 5.25- and 3.5-inch (IBM).

PUBLISHER: Origin Systems, 136 Harvey Rd., Londonderry, NH 03053; (603) 644-3360

PRICE: \$60

COPY PROTECTED: Yes

OVERALL RATING: ★★★★★

DOCUMENTATION: ★★★★★

PLAY SYSTEM: ★★★★★

GRAPHICS QUALITY: ★★★

EASE OF USE: ★★★

Considering the complexity of Britannia, the imaginary land in which *Ultima V* is set, with over 30 towns, villages, castles, and keeps, and the vast underground land beneath it, this game is a standout. When you include the

hundreds of inhabitants, each with his or her own daily pattern of work and relaxation, as well as the passage of night and day, *Ultima V* is in a league by itself.

The extensive details are backed up by a sound story that is as complex and calculated as the world in which it's set. After the completion of *Ultima IV*, in which you attained your Avatarhood, you returned to your native world. Lord British sealed off the dungeons, and peace reigned for many years. Recently someone found an entrance to a great underground land that Lord British explored, never to return. In his absence, Blackthorne has taken over, and three Shadowlords have appeared, causing unease throughout Britannia. You and your companions have decided to set things right again.

Each installment in the *Ultima* saga has major improvements over its predecessor. *Warriors of Destiny* is no exception. The most notable change is the combat system,



A small portion of the vast area to explore in *Ultima V*.

which includes new armor and weapons. Also new is a special targeting system that allows you to attack the same opponent every round automatically and gives you the ability to fire weapons at angles. Now only six of your characters can journey together at any one time, but two nonplayer characters may join them.

Although one marvels at the ingenuity and realism of *Ultima V*, the size and detail of the land of Britannia will overwhelm all but the most experienced adventurer. After spending five hours solving a few puzzles and slaying many monsters, it can be frustrating to realize that you have barely scratched the surface. Before you purchase *Ultima V*, you should be prepared to commit at least 100 hours to solving the game. If not, you may still want to play *Ultima V* just to experience the richness of this brilliant adventure.

—DAVID LANGENDOEN

Wizardry IV: The Return of Werdna

SYSTEM REQUIREMENTS: 64K Apple, 128K IBM PC*; 5.25- and 3.5-inch (IBM PC).

PUBLISHER: Sir-Tech Software, P.O. Box 245, Ogdensburg, NY 13669; (315) 393-6633

PRICE: \$60

COPY PROTECTED: No

OVERALL RATING: ★★★

DOCUMENTATION: ★★★

PLAY SYSTEM: ★★★

GRAPHICS QUALITY: ★★★

EASE OF USE: ★★★

The tables are turned in this difficult and diabolical adventure. As Werdna (the evil wizard you defeated in the first *Wizardry* scenario), you must escape from a multilevel dungeon chock-full of do-gooding denizens. Fortunately, you're not alone. Evil (and invariably stupid) allies will join your party. Even though *they* decide their actions during combat, your allies will faithfully follow you throughout the dungeon.

The display consists of geometrical walls and doors with colorful adversaries who sink below your field of vision when dispatched. Status and option windows keep track of the action, but can be removed for a full-screen view of the dungeon. Unfortunately, the sound is uninspiring (an occasional beep).

The most annoying facet of *Wizardry IV* is that when a game is saved and re-started, all of the enemies are resurrected. A less serious problem is the repetition of messages, greetings, warnings, and even your own exclamations, each time you step onto the corresponding space.

Setting the stage for *Wizardry IV*.

The play system of *Wizardry IV* is inferior to that of the rest of the series. However, there is *much* more to explore and acquire as well as a larger assortment of puzzles to solve. This trade-off makes it difficult to compare *Wizardry IV* to the other scenarios (which are superb). One thing is certain: *Wizardry* fans will not be disappointed. It should be stressed that this is an expert adventure and will undoubtedly wind up gathering dust on the shelves of inexperienced gamers. But for those with patience and courage, *Wizardry IV* will bestow months of suspense, entertainment, and adventure.

—ALEX SHAKAR

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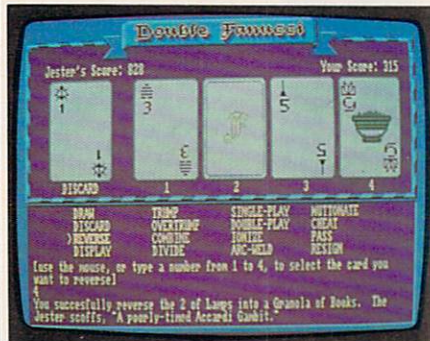
The Latest Scoop on Games

BY JIM PHELAN



NEVER SAY NEVER. In 1984, to defend the absence of graphics in its text-only adventures, **Infocom** ran a national ad campaign that explained "there's never been a computer built by man that could handle the images we produce. And there never will be." Four new Infocom games are now out that make use of color graphics! Ironically, they will all be available for the **Apple II** and **IBM PC**—machines that were widely available when the ad first appeared.

ZORK PREQUEL? The first of **Infocom's** graphic adventures is a prequel to the *Zork Trilogy* (and *Beyond*). While attempting to prevent the destruction of the Great Underground Empire in *Zork Zero: The Revenge of Megaboz* (128K Apple II, 1MB Macintosh, Macintosh II; \$50-\$60), you learn of the kingdom's history



Now you can play the legendary card game of *Double Fanducci* in *Zork Zero*.

(including how to play *Double Fanducci* and the origin of the White House). In *Journey* (128K Apple II, 512K Apple IIgs, 1MB Macintosh, Macintosh II; \$50), you control five characters who are seeking the help of a great wizard to save their village. In sharp contrast to the open-endedness of most Infocom adventures, *Journey* has a menu from which you must select your commands. This will be helpful for novice adventurers, but may be too restricting for the more advanced. Both should be available for the **IBM PC** later this month, while the **Amiga** and **Atari ST** versions won't be out until 1989.

TEAM PLAYER. Three new simulations are available from **Epyx**, a company known for

its quality sports games. While *Street Sports Football* (128K Apple, C 64/128, 384K IBM PC; \$20) looks to be just another entry in the successful "Street Sports" series, *The Sporting News Baseball* (128K Apple, C 64/



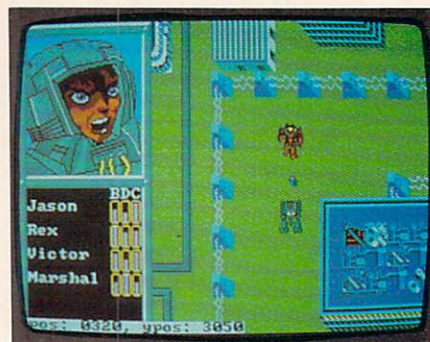
The Sporting News Baseball allows you to play in the major leagues.

128, 256K IBM PC; \$40) takes a different approach to sports simulations. Based upon actual players' statistics, *The Sporting News Baseball* gives you control of major leaguers from past and present (including the game's spokesperson, Gary Carter). Also on the horizon is *Final Assault* (512K Amiga, 512K Apple IIgs, 512K Atari ST, C 64/128, 256K IBM PC; \$40-\$50), a mountain-climbing simulation that tests your ability to climb six different trails. In my opinion, mountain climbing rivals bass fishing (*Gone Fish'n* by Interstel) as the most contrived concept for a sports simulation to date.

NEW FRONTIERS. Spock, Uhura, and the rest of the *Enterprise's* crew are on yet another diplomatic mission in *Star Trek: First Contact* (128K Apple, 256K IBM PC; \$40). However, their secret goal is to be the first to establish contact with a newly discovered alien race. **Simon and Schuster's** fourth entry in the *Star Trek* series is bound to do well due to the large number of loyal trekkies in this part of the galaxy. *Silpheed* (512K Apple IIgs, 256K IBM PC; \$35) should also sell briskly at first since **Sierra On-Line** imported the outer-space arcade game from the creators of *Thexder* (**Game Arts** of Japan).

RPG LICENSING. Joining *Ogre* and *Car Wars*, two additional popular book-based role-playing games are about to be translated to computer. Although **Paragon Software's** first adventure in the *Traveller* series won't be

available for the **IBM PC** and **Amiga** until April, *BattleTech: The Crescent Hawk's Inception* (512K IBM PC; \$50) should keep most science fiction enthusiasts busy until then. Zoom pictures of characters and battle sequences (which **Infocom**, the game's publisher, calls "emotive outtakes") are animated in the same drawing style as some Japanese comic books. Both *Traveller* and *BattleTech* remain popular role-playing games, and I see no reason for this to change when adapted to a different medium (if done with care).



One of the many "emotive outtakes" from *BattleTech*.

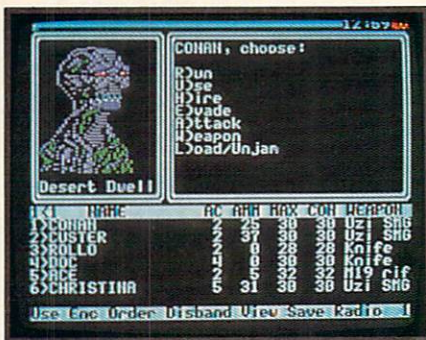
TRENDS. Sixteenth-century Japan is the latest theme to be overplayed by the computer-gaming industry. In July, **Koei** released a simulation in which you attempt to take over Japan during the Warring States Period (*Nobunaga's Ambition*). More recently, **Infocom** unveiled *Shogun* (128K Apple, 1MB Macintosh, Macintosh II; \$50-\$60). The adaptation of James Clavell's novel and TV miniseries will be available for the **Apple IIgs** and **IBM PC** later this month. And **MicroProse** promises *Samurai* (256K IBM PC) by early spring. As a Japanese warrior, you attempt to unite all of Japan (sound familiar?). I must admit that this is one of the most interesting periods in Japan's colorful history, but the release of three games in less than one year is overkill.

CONTEST! Think you've played a lot of computer games? We'll see. Beginning in January, a **HOME-OFFICE COMPUTING** year-long contest will test your gaming knowledge as well as your memory. Each month, prizes will be awarded to the "most informed," while the grand prize will be given to the overall high-scorer at the end of the year. Stay tuned for more information.

FAMILY COMPUTING

GAME HINTS

Wasteland (Electronic Arts). In this graphic adventure, you assemble a group of Desert Rangers to investigate the surrounding cities and deserts for the cause of a strange disturbance. (64K Apple, C 64/128)



A creature you may encounter while exploring the Wasteland.

- ★ Raise each character's intelligence to 23.
- ★ Always enter Darwin from the north.
- ★ Ace can repair the jeep outside Quartz.
- ★ You'll find plenty of weapons in the ammo bunker in Needles.
- ★ The Temple of Blood has more than one level.
- ★ The path through the chessboard is 1-up, 4-left, 2-up, 5-right, 1-down, 2-right, 4-up, 2-left, 1-down, 4-left, 2-up, and 2-right.
- ★ You can safely enter the vault by shutting off the security system in the police station.

—MICHAEL DONG
San Francisco, California

2400 A.D. (Origin Systems). In this role-playing game, the Tzorg robots have taken over planet XK-120. You alone must shut down the control console and overthrow the Tzorgs. (64K Apple, 256K IBM PC)

- ★ Your first priority should be to accumulate credit to upgrade your weapons.
- ★ Don't worry about the 2,000 "clicks" of time that run out before you check in at the public tracking office.



Battling robots in the year 2400 A.D.

- ★ An intelligence boost is worth the cost.
- ★ Steal energy from the power nodes along the street (if you can).
- ★ When setting a time bomb, make sure that you are more than three "clicks" from it before it detonates.
- ★ You'll need a jet pack and a field disperser to reach the deactivation terminal.
- ★ When something breaks, chances are you'll be able to repair it yourself.

—JASON YACKEE
Harrisburg, Pennsylvania

CONVERSIONS

High Seas (Gardé). Now available for 256K IBM PC, 512K Macintosh. Already out for 64K Apple, C 64/128. Reviewed in February 1988 issue.

The Last Ninja (Mediagenic). Now available for 128K Apple, 512K IBM PC. Already out for C 64/128. Reviewed in February 1988 issue.

Pirates! (MicroProse). Now available for 256K Apple IIGS, and 512K Macintosh. Already out for 128K Apple, C 64/128, 256K IBM PC. Reviewed in January 1988 issue.

Test Drive (Accolade). Now available for 128K Apple. Already out for 512K Amiga, 512K Atari ST, C 64/128, 256K IBM PC. Reviewed in March 1988 issue.

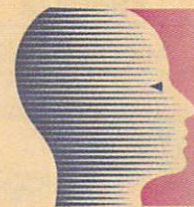
Up Periscope! (ActionSoft). Now available for 256K IBM PC. Already out for C 64/128. Reviewed in October 1987 issue.

Wargame Construction Set (Strategic Simulations). Now available for 256K IBM PC. Already out for 512K Atari ST, C 64/128. Reviewed in April 1987 issue.

Warship (Strategic Simulations, Inc.). Now available for 384K IBM PC. Already out for 48K Apple, 512K Atari ST, C 64/128. Reviewed in July 1987 issue.

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Don't miss the opportunity to share your original game hints and tips with other readers. Submit entries to: Entertainment Editor, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. Include your name, address, telephone number, a short description of the game, and the brand and model of computer you own. If your tips are selected for publication, we'll award you a new game for your computer. We reserve the right to edit submissions for accuracy, clarity, and length. Unfortunately, we won't be able to acknowledge each submission. ■



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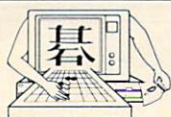


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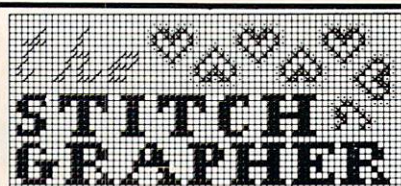
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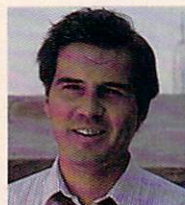
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An Office of One's Own

Separation Is Key When Parents and Children Work and Play in the Same House

BY NICK SULLIVAN



My wife moved out on me over a year ago. She felt things had gotten so bad sharing an office with me that she hired two carpenters who worked for months to build her a new office with a window seat and a significantly better view. During construction I wondered—is it the slanted walls, the noise of my computer's fan, or my phone manner that's forced her to evacuate? I had never minded an office roommate, but now that DJ's gone (downstairs), I can see the advantages of solo space.

Good fences make more than good neighbors. They make good parents and good spouses, too. When you work at home for any period of time, you've got to find a way to erect both physical and psychological fences between you and your loved ones, who will pester you if they find openings.

Keeping two adults separate during working hours is not so difficult, if you have the room, but keeping children out of your hair is another matter. There is nothing worse than trying to think straight during a phone call when a short person is tugging at your arm and whimpering, barking, or otherwise emoting. So what we have tried to do is educate the short person—3-year-old Sarah J.—about the meaning of work.

Work, of course, means different things to different people at different times, but to me it generally means being left alone. At least that's the meaning I try to convey to my 3-year-old. So, at those times when Sarah J. is not either in nursery school, with her mother, or visiting friends, the typical workday conversation might go like this:

"Well, I gotta go work," I say, as I head up the stairs to my office.

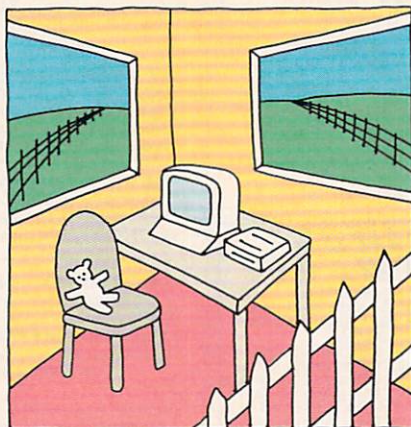
"I gotta work, too," says Sarah J., putting the tail on me.

"I gotta make some phone calls so it's gotta be quiet," I say, trying to shake her.

"I gotta make some phone calls, too," says the short person.

"How about you make phone calls out by your dollhouse," I venture.

"Okay!" She accepts the offer!



**Good fences
make more than
good neighbors.
They make good parents
and good
spouses, too.**

Now this is the perfect situation. My office has a glass-paned door with one pane missing, which means that I can see out to her dollhouse and listen for sounds of trouble (and if you've ever read Beatrix Potter's "Tale of Two Bad Mice" you know that trouble can befall dollhouses), while she can be comforted by the sound of her father yelling at people on the phone. We can co-exist for hours like this, working on either side of the glass door, a non-threatening but effective fence.

Other times the fence is invisible. I might say, "You can stay in my office if you read a book quietly, or draw by yourself, or 'work' on your Muppet keyboard." She particularly likes this. Since I count sitting in front of a computer screen as work, Sarah J. does too.

Though she has her bad moments, Sarah J., who has grown up watching her parents working, basically understands what it means when we want to work: She can stay near us, but must be self-sufficient.

Every once in a while, Sarah J. makes comments that indicate she has conditioned herself to live in a house that is used for work. One time when I said goodbye to attend a meeting in Boston, she said, "But,

Daddy, you work at home." Nonetheless, an entire day of work is hard for her to fathom; to her, work is something that can be turned on and off at will. Sometimes she just walks into my office and says, "It's time to turn off the computer; you've worked enough." At the same time, she understands that work is regular and quotidian. "Is today a work-day?" she'll ask in the morning. Or at the end of the day, mirroring her mother's frustration at not finishing a work-related task, she'll say, "I'm upset because I didn't get any work done today."

Sarah J.'s younger sister, 1-year-old Lucy, is another kettle of fish altogether. I store my computer system on the floor to keep a cleaner desk, but that puts the reset button at toddler hand-hold height and makes Drive A look like a piggy bank slot. No computer disasters yet, but Lucy knows how to rip paper from the printer. And she is conditioned for nothing but action. In short, she requires constant surveillance.

But this is why DJ and I work at home—to help, and watch, the children grow up. And we do it together because no other option seemed to make sense. If one of us worked in a regular office and the other was home working and caring for the kids, it would be too isolating. If we both worked in an office and hired a nanny (what a silly word), we'd feel like parents on furlough.

But thrusting ourselves from different buildings in the outside work world into one office in a house where we spend 24 hours a day was the opposite of isolating. The togetherness didn't cause much tension; it just didn't give us the sense of going out into the world and coming back home, which is how we are preconditioned to relate to "home." I guess we had turned our home into too much of an office. Were we working on the same projects, with similar work rhythms and deadlines, it might have been different.

Now, we have reclaimed our home and made better offices as well. Each office has a play area outside it, a place where children can be children without disturbing adults. It's much better to be separated by one floor and 26 stair-steps—while still connected by a Radio Shack wireless intercom and the thought that the kids have two moorings to swim between. That way, all of us have a place to make our own noise and think our own thoughts—and still have a place to call home. ■

NICK SULLIVAN is a senior editor of HOME-OFFICE COMPUTING who lives in South Dartmouth, Massachusetts.

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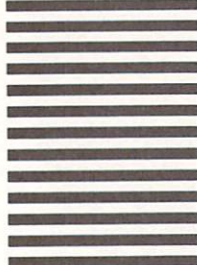
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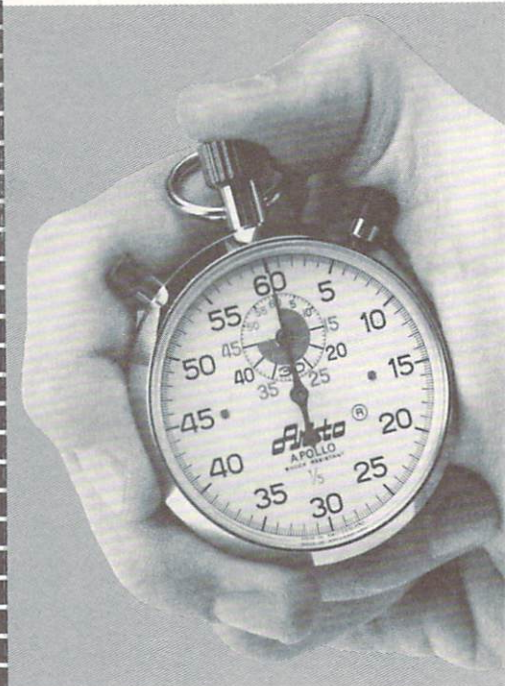
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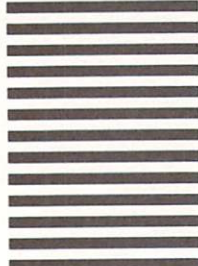
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